

NEIGHBORHOOD CONSERVATION DESIGN PROPOSALS  
AND APPLICATIONS

by

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Certified by

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ABSTRACT

The extent of our urban residential areas that need protection or conservation is vrey great. This thesis provides a catalogue of ideas, designed to be useable in a maximum number of residenti<sub>a</sub>l areas in American cities. A survey shows that the most typical physical residential pattern is a uniform grid of blocks formed by the division of the mile-square sections in the public land states, into eighths and sixteenths.

There are numerous design possibilities for removing many of the faults of these residential areas, But there are also severe legal and cost limitations and problems of effectuation. Some design opportunities are: Heavy traffic can be concentrated into fewer streets which can be partially isolated from neighborhoods at minimum cost by reorienting access to abutting houses. There are numerous ways by which interior neighborhood streets can be blocked to thru traffic. Foci can be formed and neighborhood facilities added by selective addition and relocation. Monotony of scenery can be reduced by forming new spaces with hedges, walls, and trees. These changes can be effectuated only in a co-operative atmosphere.

Two sample neighborhoods, one of middle age and one built up since World War II, are used for illustration of applications of the design proposals. This catalogue does not contain all the ideas there are but it puts many of them into an orderly relationship with the intention of stimulating further thought on the subject.

Arch. Nov. 21, 1956



Letter of Submittal

Massachusetts Institute of Technology  
Cambridge, Massachusetts  
May 21, 1956

Professor Frederick J. Adams  
Department of City and Regional Planning  
Massachusetts Institute of Technology  
Cambridge, Massachusetts

Dear Professor Adams:

In partial fulfillment of the requirements for the degree of Master in City Planning, I submit this thesis entitled Neighborhood Conservation Design Proposals and Applications.

Sincerely,

William R. Butz

I wish to express appreciation to the members of the faculty who gave wise counsel and very helpful criticism toward my work on this thesis.

Acknowledgment is especially due to:

Professor Burnham Kelly

Professor Kevin Lynch

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## FOREWORD

Much effort has been devoted to the clearance of slums and to the rehabilitation of badly blighted neighborhoods, but only the beginnings of thought and effort have been given to conservation of residential areas that are essentially in good condition but which will soon be in the rehabilitation and clearance category if the proper stitches in time are not made.

The extent and value of our urban residential areas that have just started or soon may start the rapid movement toward serious deterioration, are very great. According to the 1950 United States Census, out of a total of 46 million dwelling units in the country, there were 22 million, or 49 percent, dwelling units that were urban, not dilapidated, and had private baths, private toilets, and hot running water. Some of this housing is reasonably safe from excessive deterioration rates for one reason or another, but much of it is not. Not only is this housing worth a lot in terms of dollar cost of replacement, but it forms the daily environment of a great number of people.

The purpose of this thesis is to show ways by which the environment in the neighborhoods that are still in good to fair condition can be improved, so as to prevent excessive deterioration which is otherwise imminent. It consists of a catalogue of design proposals for neighborhood conservation, some of which were collected from varied sources, such as libraries and memory; while others are ideas that occurred often in looking through publications. Some of them are original, but inspired from other sources.

These neighborhood design ideas are categorized and evaluated as to the feasibility of their application to various uses. Then these design ideas are applied to two sample neighborhoods. One is a typical middle-aged residential area built-up shortly before or during the 1920's; the other is a post-World War II development of

monotonous pattern. These sample areas are derived from the street plans of actual existing neighborhoods of typical platting. These two neighborhoods are chosen to be typical of as many similar areas as possible. Their choice is based on a general survey of seventy-five of the largest cities in the United States, and also on the fact that the writer has some personal knowledge of their character.

The design proposals and applications shown here are intended to be usable in a maximum number of cities in this country and they have been chosen, designed, and presented with this in mind. A few have been tried and proven but most have not. Many neighborhood facilities that are needed but are common knowledge have not been elaborated upon here.

## CHAPTER ONE

### DESCRIPTION OF TYPICAL URBAN RESIDENTIAL PATTERNS

#### 1. BLOCK PATTERNS

There is a considerable variety of sizes and shapes of city blocks throughout the United States. But in spite of many local differences two patterns predominate, as is shown in a survey of seventy-five of the eighty-two U.S. cities of 125,000 population and over (see Appendix A).

The 330 foot by 660 foot block in a rectangular grid appears to be by far the most common single type, as shown in figure 1. There are some cities which have predominantly 660 foot long blocks, without the 330 foot width predominating; also, there are many cities where the reverse is true.

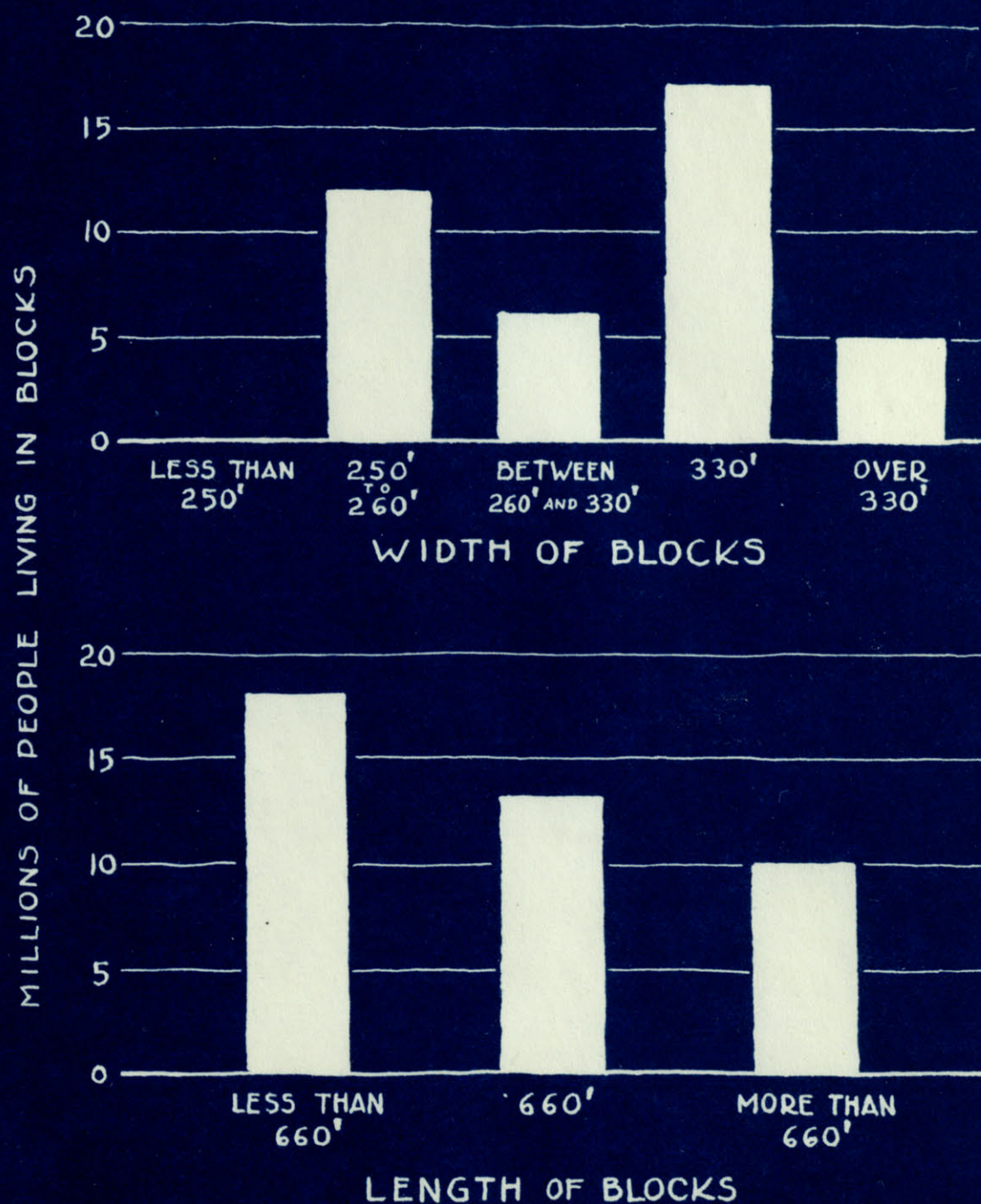
The second most common pattern is the approximately 250 or 260 foot wide block which is normally several times as long. This size is found mostly in the eastern cities of which New York is a prime example. This block provides a lot depth of approximately 100 feet. However, there is difficulty in using the blocks in these cities as a typical pattern for redesigning block or neighborhood layout because most of these cities use their blocks differently, each city having its own characteristic dwelling structures. New York, for example, which is made up largely of this type of block, has mostly large apartment structures or tenements.<sup>1</sup> Philadelphia and Baltimore are predominantly row housing.

The remainder of United States city blocks varies greatly and little definite pattern shows up over the country as a whole without a much more detailed study.

The map in figure 2 shows that the great bulk of the cities with the predominant 330 foot by 660 foot block size are in the

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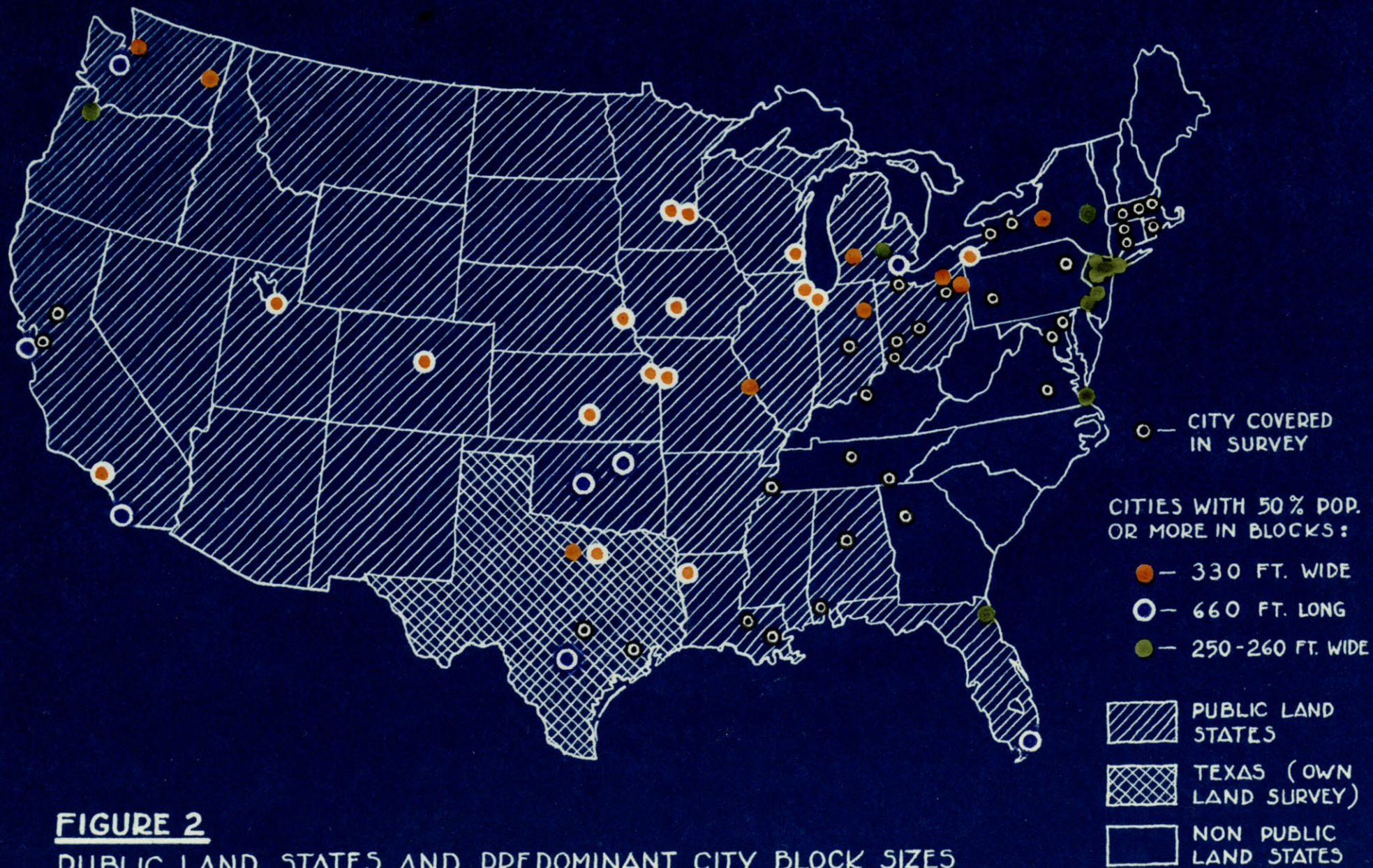
<sup>1</sup>From the 1950 U.S. Census: 62 percent of New York City's dwelling units are in structures of five or more dwelling units and only 8 percent are detached single-family units.



**FIGURE 1**

NUMBER OF PEOPLE LIVING IN BLOCKS  
BY WIDTH AND LENGTH OF BLOCKS







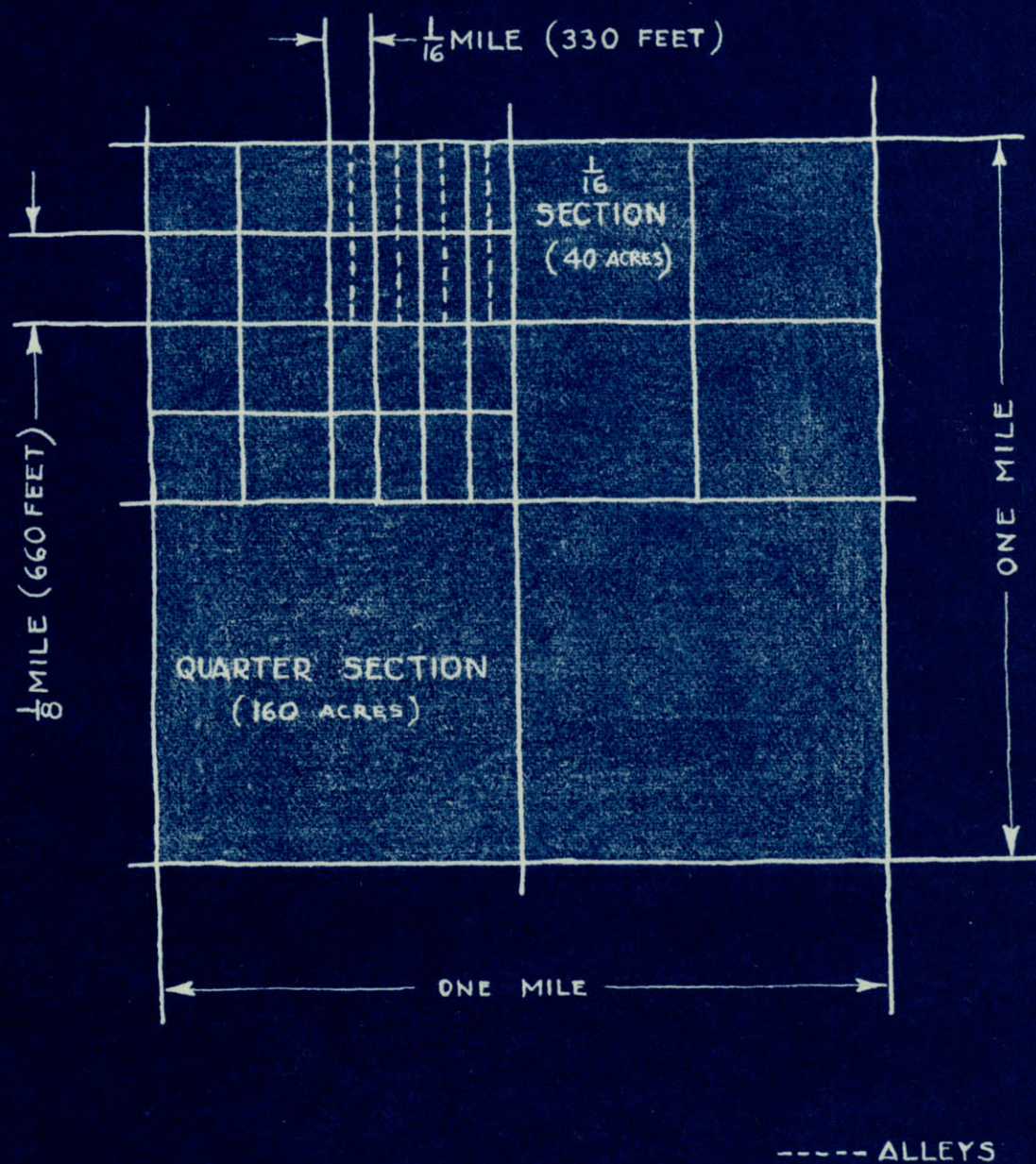
public land States where, by the great public land survey, the land is divided into one-mile squares (see Appendix B). These 29 States and Texas (which had its own special land survey) contained 57.5 percent of the population of the country as of the 1950 Census.

Most cities in these States have street patterns based on the section lines. In many of the large cities, however, the older downtown areas are laid out on a grid which disregards the land section pattern. This is also true of the bulk of the street patterns of many small towns, because most of them were platted around the same time as the central sections of the large cities and they never, or only to a small degree, outgrew their original plans. This older pattern seems to be most commonly a grid of square blocks of approximately 400 to 500 feet, between the street centerlines. The more recently platted areas of the large cities, dating generally from the latter half of the nineteenth century, when they experienced their largest growth due to the industrial revolution, consist most commonly of blocks formed by subdividing the mile squares into eighths (660 feet) in one direction and sixteenths (330 feet) in the other, as shown in figure 3. There are many variations that differ only slightly from this pattern. Some cities have many of their blocks formed by the division of sections (mile squares) into 17, 18, or 20 blocks, rather than 16.

The orientation of these blocks varies considerably.<sup>1</sup> Some cities have virtually all blocks oriented in one direction, either north-south or east-west, and show a very high degree of uniformity over large areas, such as in Kansas City and the Twin Cities. Many other cities have a regular grid pattern of major streets, frequently at half-mile intervals, but often individual blocks within these squares vary in orientation and size according to the whim of the particular subdivider.

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<sup>1</sup> see Appendix A.

**FIGURE 3**

DIVISION OF A SECTION INTO BLOCKS

The purpose of this block pattern survey has been to establish a general idea of what the most outstanding patterns are, in order to choose a block size and shape on which to base neighborhood design ideas. The 330 foot by 660 foot block size will be used.

## 2. PATTERNS OF MAJOR STREETS

According to the block pattern survey, the most common single pattern that the major streets take is a one-mile and half-mile square grid which follows the section and quarter section lines in the public land surveyed areas. In 38 percent of the cities surveyed this pattern predominates in varying degrees and divides the residential areas into one mile or half mile square segments.

The standard right-of-way of these section line roads was originally 66 feet, which was one "surveyor's chain" length. However, according to Gallion<sup>1</sup> many were widened to 80 or 100 feet as the cities expanded into the countryside. Also, since several city atlases that were inspected indicate that these three widths are common for major streets, they will be used for design examples.

There are often diagonal and irregularly placed major streets which cause a substantial number of variations from the section line theme.

## 3. RESIDENTIAL STREET CHARACTERISTICS

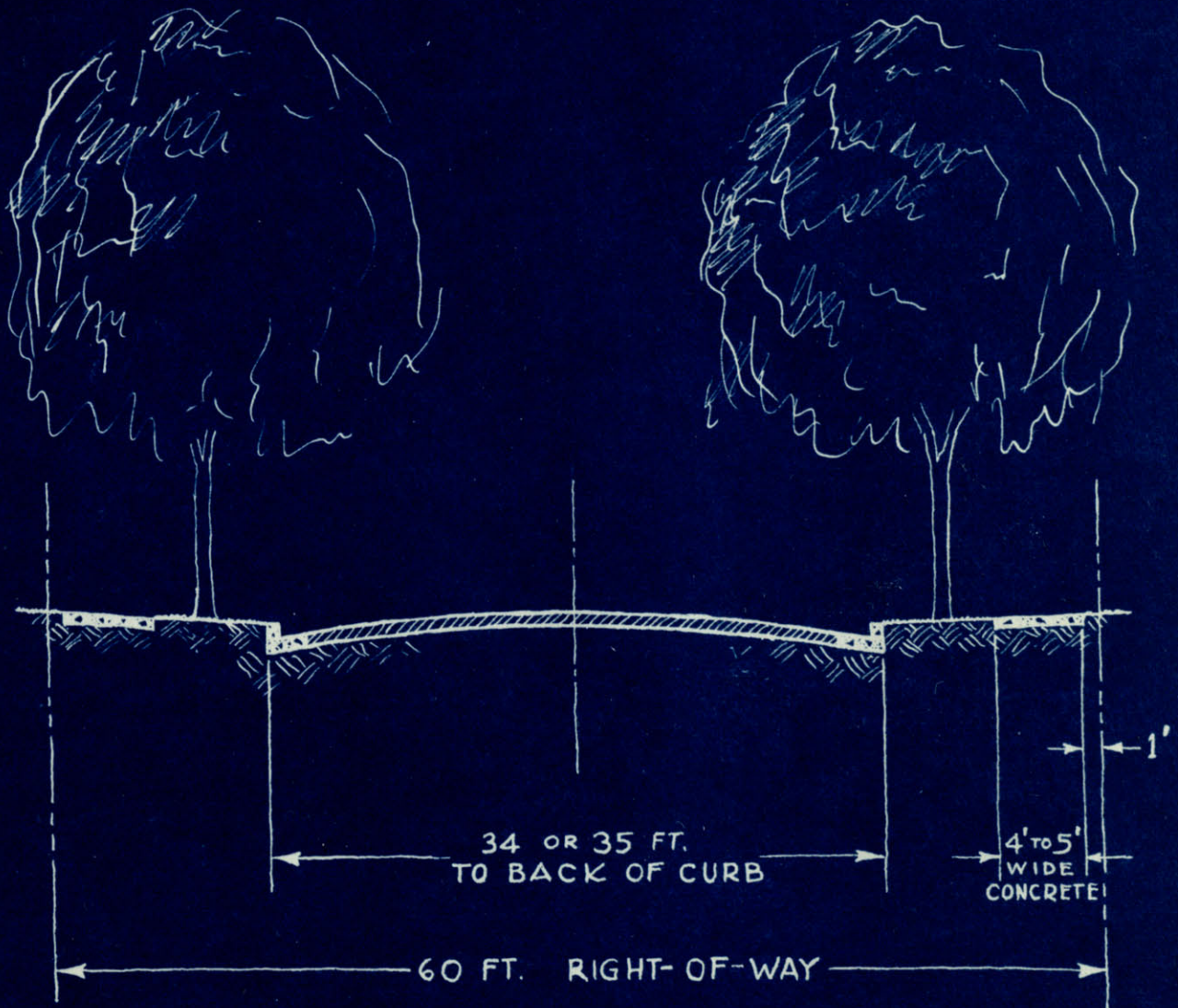
Residential street rights-of-way will be assumed as 60 feet for use in the design proposals. This decision is based on personal observation. This width appears to be by far the most typical in the public land states, and also in many areas elsewhere.

The street cross section shown in figure 4 will be used for design purposes. It is based on a "Typical 60 foot Street Cross Section" shown in The Home Builder's Manual for Land Development.<sup>2</sup> This

<sup>1</sup>Gallion, A.B., The Urban Pattern (New York, 1950), p. 306

<sup>2</sup>National Association of Home Builders of the U.S., Home Builder's Manual for Land Development (Washington, D.C., 1950), p. 47





**FIGURE 4**

TYPICAL 60 FT. RESIDENTIAL STREET CROSS SECTION

cross-section also appears from personal observation to be typical.

Pavement quality varies greatly, and design ideas will indicate treatment for both high and low quality.

1. Street trees: From measurements of air photos of several cities, a spacing of 40 feet between trees shows up as being most common, but there is considerable variation.

2. Utility lines: Water, gas, and sewer lines are assumed to be located in the street right-of-way, between street trees and curb in cases where there is room. Otherwise they are under the street pavement.

#### 4. ALLEY CHARACTERISTICS

Information was obtained from 32 cities in the survey on the presence or frequency of alleys. In 70 percent of those cities, over 50 percent of the blocks have alleys. The newer areas tend to have fewer alleys.

For design purposes the easement width of alleys will be assumed to be not over 20 feet. Telegraph poles will be assumed placed along one edge of the easement, and in cases where there are no alleys they are centered on a 10 foot utility easement which is recommended<sup>1</sup> and will be assumed to exist.

#### 5. LOT SIZE AND UNIFORMITY OF PLATTING

##### A. Subdivisions of the 1920's and earlier

Lot widths will be assumed for design purposes to be mostly 40 feet wide and with uniform platting. The basis of this choice is personal observation of numerous sources. There are considerable variations to this width. In many older areas they are likely to be 30 feet.

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<sup>1</sup> The Community Builder's Handbook, prepared by the Community Builder's Council of the Urban Land Institute (Washington, D.C., 1950) p. 81.

## B. Subdivisions of Post World War II

Lot widths in these areas will be assumed at 60 feet. Frequently they are wider, but limited personal observation is the basis for choosing this width. Such areas normally have very uniform platting. Alleys are often eliminated in these developments, giving slightly deeper lots, and for design purposes we will assume no alleys to exist.

## 6. HOUSES (SIZE, TYPE, PLACEMENT)

Up to this point the descriptions have been of neighborhood features, changes to which are mainly paid for by the municipality. But in addition, changes must often be made within individual houses as part of the neighborhood conservation measures. This is a cost that must be paid by the individual property owner rather than by the municipality.

### A. Setbacks

According to a random sample of 18 zoning ordinances (see Appendix C), the following yard requirements appear: about half of the cities have 25-foot setback regulations (excluding front porch) in their single family residence areas.<sup>1</sup> The remainder are mostly evenly split between 20 and 30 feet. The 25-foot setback will be used for design purposes. The side yard requirements vary but the average is 5½ feet. A 5-foot space will be assumed for design. The rear yard requirement in most cases is either 25 or 30 feet, and the 30 foot figure will be used for designs.

### B. Types of Construction

According to the U.S. Census of 1940, the houses of the country were of the following types of construction:

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<sup>1</sup> National Association of Home Builders of the U.S., op. cit., p. 73, "25 feet is the commonly accepted distance in many parts of the country today."

77.3	percent	wood
14.7	"	brick
5.3	"	stucco
2.7	"	other

We shall assume most houses to be of wood construction for our design purposes. Wood houses are more easily moved than brick ones.

### C. Typical Single Family Detached House Floor Plans

The general floor plan arrangements of existing houses have a bearing on the difficulty of achieving a satisfactory new arrangement when access is changed to what is now the rear. The following floor plans will be used for design suggestions:

#### 1. Houses built during the 1920's or earlier:

The floor plan sketches in figure 5 are based on person observation of a sample of 37 houses of this era. Most of these houses are in Minneapolis, Minnesota, but a few are in other areas.

#### Conclusions:

- a. A basic and simple arrangement of rooms shows up as being predominant for the two-story house (Plan A).
- b. The 1 or 1½ story house has somewhat more of a mixture of room arrangements, but one type shows up as more common than any other (Plan C).
- c. Living rooms are always in the front and the kitchens in the rear. In most cases the stairways are along the side wall of the house.

All of these features have a bearing on the ease or difficulty of reorienting the entrances, which is proposed in some designs.

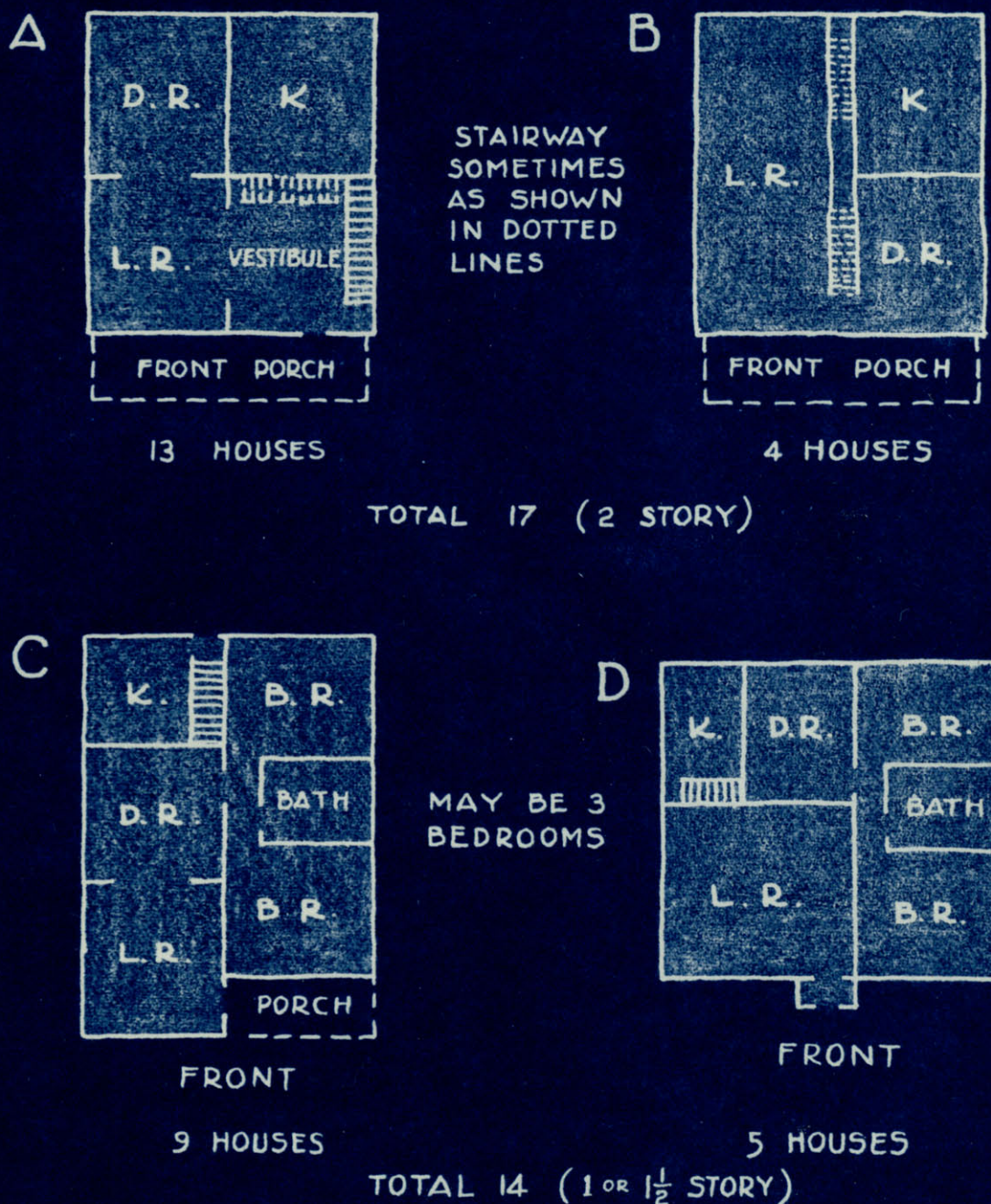
#### 2. Houses built since World War II:

The floor plan sketches in figure 6 are based on a sample of 21 typical plans traced from several issues of House and Home magazine. The generalized sketches show the following features, which have a bearing on the ease of reorienting the entrances:



GENERALIZED FIRST FLOOR PLANS OF 31 HOUSES FROM SAMPLE  
OF 37 MOSTLY IN MINNEAPOLIS.

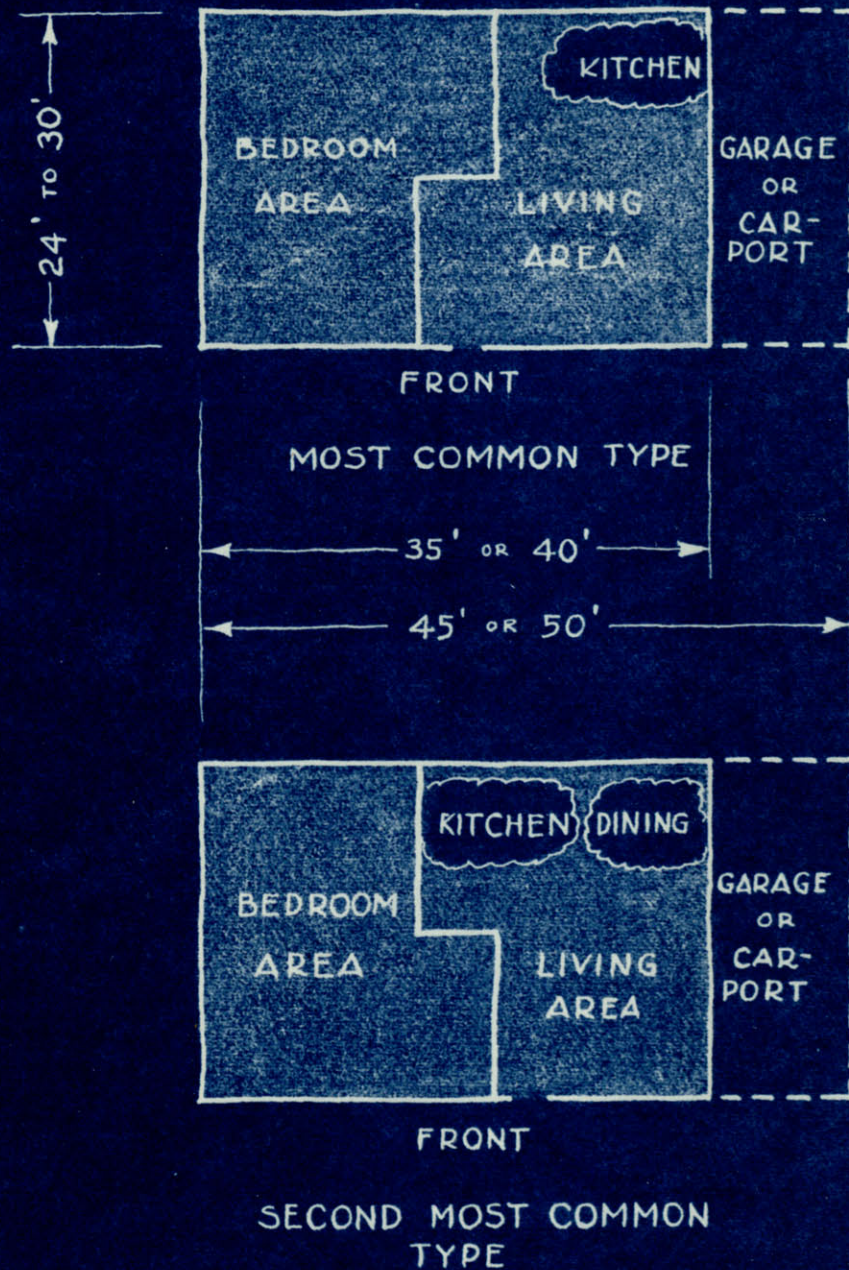
MOST HOUSES ARE ABOUT 25 FT. WIDE.



## FIGURE 5

FLOOR PLANS OF HOUSES BUILT DURING  
THE 1920'S OR EARLIER





**FIGURE 6**

FLOOR PLANS OF HOUSES BUILT SINCE  
WORLD WAR II

### Conclusions:

- a. Houses with attached garage or carport - 7
- b. Houses with living room in front - 18  
Houses with living room in rear - 5
- c. If the living room is in the front, the kitchen is always in the rear. Three of the sample have this arrangement, with the kitchen and utility room set across the back, and with garages or carport on the side. The reorientation of access is made difficult in this case.

### 7. GARAGES

The following assumptions will be made for design purposes: Garages are placed mostly along the rear of the lot, with car entrance facing the alley. A relatively small percentage of houses in the middle aged areas are without garages. Most garages are assumed to be frame, and also frequently somewhat run-down due to their location at the back alley where people care less about appearance. Post-war subdivision houses often have neither garages nor carports. When they do exist they are assumed to be either attached or detached and near the front of the lot. They have a driveway from the street.

### 8. TOPOGRAPHY OF LOTS

Some lots are assumed to be on embankments several feet above the level of the street or alley, which complicates the planning for changes of driveways or garage positions. No lots will be assumed below street level.



CHAPTER TWO  
POSSIBILITIES AND PROBLEMS IN CHANGING URBAN  
RESIDENTIAL PATTERNS

1. FAULTS AND FEASIBLE CHANGES IN URBAN  
RESIDENTIAL PATTERNS

A. Street and Highway Patterns

1. Isolate major traffic routes:

The theme which underlies the undesirable traffic pattern in the typical rectangular grid plan of most cities is the "Every street a through street" idea or concept. As the major streets become more and more overloaded, the standard procedure is to press increasing numbers of once quiet residential streets into heavy service. The damage this has done to residential property values need not be elaborated upon.

Heavy through traffic must be removed from residential streets, or neighborhood conservation will not work. This is probably by far the most expensive of all the measures suggested here. Many of these routes can only be adequately provided by taking broad multi-million dollar swathes out of the urban texture. It is made necessary by the nature of the motor vehicle. However, in many cases interim devices might be used to achieve a reasonable separation of through traffic-ways from neighborhood functions without the cost of a complete wide right-of-way being paid immediately. This gives the opportunity for future lower cost acquisition of houses that are now relatively new by permitting them to amortize much of their value, to the mutual advantage of both property owner and taxpayer.

2. Block off through residential streets:

There are several commonly known ways to block through streets. The cul-de-sac, the loop street, or simply the closing of a full block length of street, are ways to achieve this. There are many

variations to meet different requirements. This device is useful to exclude all traffic from a street except that which serves the fronting dwellings.

### 3. Close alleys:

There is a growing feeling among modern designers and planners that alleys should be eliminated in most cases where it is feasible, because:

- a. they are usually unsightly and encourage unsightliness;
- b. duplication of access to houses is not needed;
- c. their elimination would leave more space for back yards or an alley park.<sup>1</sup>

A problem that may arise in the closing of several streets in a row into loops or culs-de-sac is that the alleys, if allowed to remain through, may in certain instances become used as through streets or short cuts.

Often, access to garages can be converted to the front street or to small garage compounds in the alley so that all or a portion of the alley may be closed.

### B. Types of Dwelling Structures and Placement

The arrangement and designs of dwelling structures in most residential neighborhoods have several commonly recognized faults. Several of the most common faults and general suggestions for reducing the most objectionable ones are:

In typical urban residential neighborhoods, detached houses are frequently spaced too closely for proper light and privacy, even though they may be in good condition and are otherwise well-functioning houses

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<sup>1</sup>Detroit Plan Commission; Neighborhood Conservation Information Bulletin  
- Alleys (Detroit, ).

which should have a long remaining useful life ahead. These houses would be much more valuable as places to live in if they had more open space around them. It may be feasible in some cases to relocate perhaps every third house, thereby opening up a wide yard on one side of every remaining house. Often houses are spaced unevenly and a desirable effect may be achieved by removing only an occasional house which may be especially close to its neighbors. The result would be a variety of spacing and of lot sizes. A likely instance is in the case of houses which front on a major street that is being made limited access. These houses may have their access reoriented to a widened rear alley. Much back yard space may be required for the "rear street" right-of-way, but this space might be traded for a newly acquired side yard by moving every third house.

Most zoning laws encourage a high degree of specialization of housing types over large areas, in the fear that mixture will deteriorate building values. But the feeling has developed in recent years among many designers and sociologists that a certain degree of variety of types of dwellings should be available in a neighborhood. Examples in addition to the typical single-family detached house are: row or semi-detached houses; small houses each with a small garden, for elderly couples; and apartment structures (both walk-up and occasional hi-rise buildings).

A good many middle-aged neighborhoods have some variety of housing types already available. Multi-family dwellings of various sizes are often mingled in with single-family detached houses. However, usually some types are not available.

The new postwar neighborhoods are confined not only to single-family detached houses, but also to practically identical size and floor plans over large areas of development.

Suggested types of housing to be added to single-family detached house areas are:

1. Variations in size or number of rooms and in types of floor

plans in single-family detached houses to accommodate various sizes of families.

2. Row houses which are economical of lot space and have many of the advantages of detached houses.

3. Small cottages for elderly couples, on small lots. Such houses may have as few as two or three rooms - a living room, a kitchen and a bedroom. In such a house the couple would spend only a minimum time in housekeeping but they could enjoy a ground level house with a small garden, in a neighborhood with young people around.

4. Multi-family dwelling structures ranging in size from two-family detached houses to large hi-rise apartment buildings on multi-acre tracts of land.

5. Rooms to rent.

6. Examples of some special types of housing which may be present in some neighborhoods:

a. school dormitory

b. orphans' home

c. nursing home for the care of infirm.

### C. Neighborhood Facilities

A residential neighborhood must have facilities and services in addition to housing. Some of these facilities must be present to make a neighborhood function adequately. Most of them are present in most neighborhoods in some form, but often they are inadequate in quality of service performed or are at the wrong location.

#### 1. Shopping facilities:

Shopping facilities are a necessary part of a neighborhood. They range from the large neighborhood shopping center to the corner grocery store. The corner grocery store is valuable for convenience in acquiring small items when one does not wish to go on a shopping expedition. The small shopping cluster with several stores is also mainly a convenience shopping source. Such a cluster normally has a drugstore at the most easily accessible spot. There are always one or two groceries and usually a cleaner, gas station, barber and beauty shops. Several other stores and services are often found.

#### 2. Schools:

##### a. High schools and junior high schools

One of these serves several neighborhoods.

##### b. Elementary schools

The neighborhood concept is based on the residential area that supports one elementary school. There are somewhat varying ideas on what size this should be. Planning the Neighborhood<sup>1</sup> suggests a neighborhood unit of 4,250 people to support an elementary school (grades 1 through 6) of 390 pupils. This is an average size and each locality's requirements will vary.

##### c. Primary and nursery schools

An alternative to the single elementary school neighborhood would

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<sup>1</sup>American Public Health Association, Committee on the Hygiene of Housing, Planning the Neighborhood (Chicago, Public Administration Service, 1948), p. 45.



be a combination of an elementary school neighborhood with primary school sub-neighborhoods. The primary school which would serve the sub-neighborhood might take children from nursery school through second grade. The elementary school would handle third through sixth grade. Assuming the same size elementary school, its neighborhood district would be 50 percent larger than with the first through sixth grade system. This would give a neighborhood population of about 6,400. If there are three primary schools per elementary school, there would be a little over 2,000 people in a sub-neighborhood unit.

Advantages to this latter system are: The young primary school children do not have to walk so far to their school. Also, nursery schools and kindergartens are becoming increasingly a standard part of public school systems and this is one good way of incorporating them into the system.

The policies of school districts and the proportion of children per population both vary greatly in different areas.

### 3. Parks and playgrounds:

Some of the desirable facilities are:

- a. adequate space for games, sports, and quiet.
- b. paved areas for various functions such as games, skating, dances, meetings, etc.;
- c. play facilities and equipment such as swings; slides; tunnels; jungle gyms; play-sculpture; stationary make-believe objects such as trains, ships, animals, etc.;
- d. the junk play area is an idea which has been developed in the Scandinavian countries.<sup>1</sup> It provides creative and fascinating equipment for children to play with but which is junk to adults and is therefore low in cost. It may include junk such as old auto bodies, oil drums, barrels, bricks, old used lumber, crates, etc.

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<sup>1</sup>Legepladser, published by Arkitekten (Copenhagen, 1952)

- d. tot lots;
- e. bulletin board - for the use of residents within the area served by the park or playground. It can encourage neighborhood spirit and cooperation and interest. Events of neighborhood or block interest could be posted.
- f. pavilion or shelter.

#### 4. Community activity centers:

A place where residents of a neighborhood can meet to organize, work on common objectives, and to have social gatherings is very important in developing a cooperative spirit. Some sort of facilities for meeting and working together should definitely be provided. Meeting rooms, gymnasium, and hobby or workshop facilities are each desirable. The workshops may include woodwork, printing, art, dark-room, machine shop, etc. In many cases the local elementary school is being utilized for these various adult functions as well as for P.T.A. meetings. Many new schools are being built with such facilities specially provided.

#### 5. Health service:

There is an increasing trend for branch health centers to be developed in districts throughout many larger cities. There may be one for several neighborhoods. It may be in a community activity center, a shopping center, or it may be attached to a school.

#### 6. Churches and clubs:

Churches and clubs should be close to their congregations and membership. The areas of membership vary greatly, depending on the proportion of the population belonging to any given organization. Some denominations have only enough members to support one church in the centre city, whereas others can sometimes support several churches per neighborhood.

### 7. Parking facilities:

Adequate off-street parking space should be provided in all cases where too much curb parking causes inconvenience and a blighting effect on residential property. Generally, the facilities that need some off-street parking are:

- a. large multiple dwelling structures
- b. churches and clubs
- c. shopping clusters and centers
- d. large schools and community centers
- e. playgrounds where adult recreation or spectator sports take place
- f. light industries which may be permitted in the vicinity

### 8. Public transit:

Bus stops should be provided within one quarter to one third of a mile's walking distance of most dwellings. Generally this means bus lines spaced at one-half mile intervals, which fits many existing major-street patterns. In low density Post World War II areas this frequency may not be practical. When multi-dwelling structures are built they should preferably be located convenient to bus stops because this gives the maximum potential number of riders to the transit system as well as convenience to the residents.

Good quality transit service with maximum convenience is essential if people are to be expected to make maximum use of public transit in preference to driving. A neighborhood feature which has seldom been provided but which would greatly add to convenience of riders is a bus stop shelter.

### 9. Pedestrian circulation:

Many new Post World War II developments have been built without sidewalks, often even in major streets. Suitable pedestrian routes,

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<sup>1</sup>American Public Health Association, op. cit., p. 9.

separate from vehicular traffic, are necessary for safety.

The shortest vehicular route between two points is not always the same as the shortest pedestrian route. The latter is a straight line; the former, for traffic purposes, is not. Many long blocks might be bisected by pedestrian ways. These might become pleasant and convenient pedestrian routes which would connect neighborhood foci. Also, neighborhoods might be connected with district or city recreation areas by way of these traffic-free walk routes or "greenways".

Large paved areas are useful where many pedestrians congregate, such as in shopping centers.

#### 10. Bicycle paths:

Bicycle riding is a form of exercise and transportation of which adults as well as children might make more use if good facilities were available. Suitable paved routes should be provided to prevent the need for cyclists to use major vehicular traffic routes. An excellent bicycle path system could be designed which would make use of fire lanes that are kept in the location of streets that have been closed to cars.

#### D. Delineation of Neighborhoods

The concept of dividing a city into sub-areas of one sort or another is pretty generally accepted by most modern designers and planners. Four sizes of units of subdivision of the city residential texture have been arbitrarily chosen for discussion. These units are not intended necessarily as recommended sizes, but only as examples of a range of subdivisions that might be built into a given city.

##### 1. Neighborhood unit:

The neighborhood unit, defined as the size of an elementary school district, is undoubtedly the best known and most accepted idea today. It was first introduced as a quite specific suggestion by Clarence A. Perry in 1929. It has been elaborated on by many since then. The population of a neighborhood unit usually falls between 2,000 and 8,000 persons. A desirable size is around 5,000 people.<sup>1</sup>

##### 2. Sub-neighborhood unit:

The elementary school neighborhood can be divided into several sub-neighborhood units and each of these units is usually large enough to support the following facilities:

- a. small shopping cluster of 5 to 10 shops; such a cluster would always include a drugstore and grocery;
- b. nursery or primary school;
- c. small park and playground for young children;
- d. possibly a church or two.

This size of unit can be used as a focus for a smaller population than the usual size of neighborhood unit.

##### 3. Block cluster:

A fairly likely subdivision of the sub-neighborhood would be the

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<sup>1</sup>American Public Health Association, op. cit., p. 2

corner grocery store service area of several blocks. This type of store is commonly recognized as a risky operation, but many of them continue to exist. If several other elements are gathered at the corner with such a store its stability should be enhanced. Such elements are:

- a. a bus stop;
- b. a pleasant paved area with benches;
- c. a totlot;
- d. a bulletin board.

4. Block unit:

The scale of the city block is the smallest likely size for the development of a focal area for social gatherings. Such a focal area may be either a front street park or back yard park which would be probably about a quarter acre in size. Such a block park would only be developed in cases where the cooperation of the residents could be enlisted for its maintenance.

#### E. Foci

By grouping neighborhood facilities into foci the following advantages can be gained:

1. Focus areas can contain most vehicular traffic generating facilities and thus concentrate this heavier duty traffic to few streets which may then be economically designed and built for the heavy loads. The remaining streets become quiet and restful.
2. The necessary parking areas can be called upon to serve various functions at different times, thus saving duplication of facilities. An example is a common shopping area and church parking lot which serves the shoppers on weekdays and the church on Sundays.
3. Merchants and all concerned gain by the centralizing effect of bringing many people together for maximum length of time.
4. The area of physical contact between residences and other facilities that are not especially compatible when very close, such as stores, parking lots, often churches, etc.; can be reduced most easily when these facilities are grouped together.

#### F. Variety of Dwelling Unit Choice

Stores, schools, and other services that are needed in a neighborhood can be blighting influences if not located in the proper relation to homes. Thoughtful planners are becoming increasingly aware of the monotonous expanses of single-family houses that comprise so many of our residential areas, and they believe that there should be more variety in one's choice as to what type of dwelling structure he wishes to live in within a neighborhood.



#### G. Deteriorated Structures and Low Maintenance Standards

As is well known, a few deteriorated houses and neglected lots scattered among good houses can be a serious blighting influence on the entire neighborhood. It is very important that these "rotten apples" be removed from the basket. This is also true of any other neighborhood structures - stores, garages, churches, clubs, etc. - which perform a useful neighborhood function but are dilapidated. Three basic treatments are practical, depending on the condition of the structure and its relationship to other structures:

1. Demolish.

2. Rehabilitate.

Put structure into good condition if this is economically justified.

3. Remodel.

In addition to being put into good condition the structure is at the same time "modernized" or made functionally more adequate by present day standards.

## II. Esthetics

There is considerable room for varying opinion regarding the esthetic qualities of our typical residential areas, but there are several features that are agreed upon as shortcomings by most modern planners and designers:

### 1. Monotony:

Most cities have residential areas with a monotonous similarity of street scene throughout. The standard nice residential street has a row of houses behind broad lawns on each side of the street in a park-like setting. There is also a handsome line of trees planted on each side of the street in evenly spaced rows. When a scene is repeated too often, no matter how pretty, it loses much of its appeal.

This typical street scene could be made one of a variety of scenes, each of which occurs relatively infrequently. There would be much more interest created. Each new block one walks or drives through could be a new and different experience with its own special character and mood. The residents of each place could develop a more distinct sense of identity, and of pride in their own little area or niche in the urban mass.

### 2. The rectangular grid:

In recent years there has been much feeling built up against the rectangular grid which so typifies the residential areas in American cities. Much of this objection may be a reaction to the deadly monotony caused by the unimaginative use of the grid. There is the feeling that a newly designed residential area must have predominantly curved streets or it is not a good one. Often curves are laid on flat land arbitrarily where on such topography a grid form would be more fitting and logical.

Much can be done to existing rectangular grid patterns to make them more interesting and pleasing. Variety can be achieved by other

means than by putting curves in streets. Culs-de-sac and loops can be treated as distinctive and intimate house groups. Variety of space feeling can be achieved by placement of trees and other features; or focal areas can be given distinctive character.

### 3. Details:

The lowly details of the urban scene such as pavements and street furniture could be made much more attractive than they are. Pavement is usually drab and devoid of interesting colors and patterns which could be given it. According to an early report on a research project now in progress, people seem to notice the surfaces on which they walk much more than other features of scenery.<sup>1</sup> So there may be much advantage in treating pavements attractively.

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<sup>1</sup> "The Perceptual Form of the City", a research project being carried on by Professors Gyorgy Kepes and Kevin Lynch at M.I.T.

### I. Undesirable Uses

Undesirable types of land use amid good residential structures are a severe blighting influence on the latter. Since the twenties zoning ordinances have become a common and effective method of regulating this problem, and it is not necessary here to go into the details of their function. However, since most zoning laws have not been effective in eliminating previously existing non-conforming uses, there are occasional uses continuing which are incompatible with residential areas. These must be removed or adequately insulated from residences if properly functioning residential neighborhoods are to be achieved. Examples of undesirable uses are:

1. Certain commercial functions such as used car lots, auto repair shops, and trucking operations.
2. Industries with objectionable noises, odors, etc.
3. Psychologically offensive uses such as a morgue.

When an objectionable land use is removed from a neighborhood, it may be wise to search for possible re-uses of the structure or structures that housed the eliminated use. There may, for example, be a well-built industrial structure that could serve as a community gymnasium, auditorium, or workshop, with a relatively small conversion cost.

## 2. LIMITATIONS

### A. Legal

#### 1. Street easement conversion to recreation use:

Many cities do not own the title in fee to their streets, but only have easements for the rights-of-way. That is, the abutting property owners own the land to the center of the street but have in effect donated the easement land to the city to use for a "public way". If this use should cease, then the land would presumably automatically revert to those who own the land in fee. If the street is closed and used only for a park, the city may have to buy title from the abutting property owners.<sup>1</sup> But the awards would probably be small because the land has been heavily burdened with constructions relating to the easement function. Leonard Jones states in Law of Easements:

"The public may use a highway for many other objects necessary for the public convenience and health, besides the primary purpose of travelling upon it."<sup>2</sup>

If the park can be construed as a necessary public use, or if utility lines such as gas, water, and sewage remain on both sides of the street, or if walks or fire apparatus lanes are maintained, there appears to be a good chance that on this legal point the courts would act in the city's favor.<sup>3</sup>

#### 2. Access curtailment:

Ease of access will be slightly curtailed to some houses if these design ideas are carried out, but there should be no serious legal complications. The resident of a house that is left 150 feet from a cul-de-sac end probably could not claim loss of access if he can still park his car within a reasonable distance of his door.<sup>4</sup> He also has

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<sup>1</sup> Jones, L.A., Law of Easements, (New York, Barker Voorhis and Co., 1898), Chapter 12, sections 486, 487

<sup>2</sup> Ibid., Chapter 12, section 490

<sup>3</sup> Ibid., loc. cit.

<sup>4</sup> Hewes, L.I., and Oglesby, C.H., Highway Engineering (New York, John Wiley and Sons, 1954), pp. 133, 134

pedestrian access entirely uncurtailed.

If a grocery store is left at the end of a cul-de-sac after changes are made, the owner should no doubt be compensated for loss of business, but design ideas here propose that a grocery store in such a position should be removed to a more satisfactory location in any case.

If a house fronts on a highway, its right of access to this highway can be eliminated in most states. In 1953, 31 states had limited access laws<sup>1</sup> and there may be more states that do by now. Where limited access laws are in effect, gas stations or stores that depend on access to a highway for business can generally have their access condemned.<sup>2</sup>

### 3. Use of eminent domain for questionable purposes:

If it is desired to move every third house in a row in order to give more light, air, and lot space to the remaining houses, there is some doubt that condemnation powers can be used even if construed quite liberally. This is probably true even if, as an example, an alley right-of-way has been widened to take most of the back yards of the houses and the acquisition of every third house is said to be for replacement of yard space to the remaining houses. However, there is the possibility of application of a type of law enacted in Illinois, which grants eminent domain powers to the owners of 60 percent of an area of between two blocks and 80 acres if they form a Corporation.<sup>3</sup> This can be a powerful tool.

If the houses abut a highway and are being reoriented in order that the highway may be made limited access, some house lots might be

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<sup>1</sup>Ibid., p. 130

<sup>2</sup>Levin, D.R., Public Control of Highway Access and Roadside Development, Public Roads Administration, Federal Works Agency (Washington, D.C., U.S. Govt. Printing Office, 1947), p. 14

<sup>3</sup>Illinois Neighborhood Redevelopment Corporation Law enacted 1941, amended 1953

taken under the "Marginal Acquisition Laws" that some states have.<sup>1</sup>

Voluntary action and consent on the part of all property owners in moving houses without resort to condemnation, is a possibility which should not be overlooked.

#### 4. Zoning ordinances:

Many existing zoning ordinances will probably stand in the way of some of the recommended methods of bringing about variety within neighborhoods. House placement on the lots is usually pretty rigidly fixed by zoning laws. Also, the building of any sort of multi-family dwellings is usually strictly prohibited in large areas which comprise the most restricted zones in most cities. There are also minimum lot area restrictions in most zoning ordinances which would not permit the occasional small lot designed for an elderly couple's small cottage. Industrial and similar uses are completely prohibited from residence areas where there would be much beneficial effect in having certain types of light, inoffensive, industrial operations. A small, clean research laboratory is a good example of this.

These rigid zoning laws must be changed before certain of the methods for bringing variety and choice of way of living can be introduced to the neighborhood. A start in this direction has been made in a few recent zoning codes, but there is a long way to go before certain recommendations in this thesis will be permitted.

#### 5. Building codes:

From observation of several building codes the only problem of any consequence that appears is that of moving an existing frame garage close to a house. In most cities if a garage is closer than five feet or some smaller distance to a house, or if it is attached,

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<sup>1</sup>Levin, D.R., op. cit., p. 9



it must have additional fire time rating, which generally means that plaster or similar interior wall is required in the garage. There is a great variety of building codes, however, and some outdated ones may have rigid specifications which would cause undue expenses.

6. Private deed restrictions:

Deed restrictions or covenants that are commonly found attached to building lots are:

- a. Land use control, including restrictions on type and design of dwellings.
- b. Architectural control of structures, including fences and walls and sometimes even color of the house.
- c. Setback and side yard regulations, including location or prohibition of accessory buildings.
- d. Control of minimum lot size.
- e. Prohibition of nuisances and regulation of signs such as "For Sale".
- f. Restriction of temporary dwellings.
- g. Limitation of minimum size of house through minimum cost or floor area clause or both.
- h. Reservation for utility easements, usually five feet along side or rear lot lines.
- i. Location of driveways and garages.
- j. Elevation of first floor level of house and control of the grading plan.

These restrictions commonly last 25, 30, 40, or 50 years after original sale of the lots by the developer. At the end of this period, if a majority of the property owners wishes to change them, they usually may. If no action is taken at that time the restrictions

normally continue automatically.<sup>1</sup>

Many of these restrictions, like zoning ordinances, which were designed to protect property values, can be serious obstacles to carrying out many of the design ideas for neighborhood conservation. The biggest problem with deed restrictions, as with zoning ordinances, would be in attempts to achieve neighborhood variety. However, deed restrictions only cover individual lots or subdivisions and those changes that cannot be made to one lot may be possible on another.

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<sup>1</sup>Urban Land Institute, op. cit., p. 86

## B. Costs

In general, the costs of the measures needed for conservation of neighborhood values are only a fraction of the increase in property values that should result. Following are some of the more important costs:

### 1. Moving houses:

According to an article in the Journal of Lifetime Living<sup>1</sup> (quoted in Reader's Digest), a good quality house can be moved for about half its value (see table 1 for breakdown).

The cost of moving a frame, unplastered garage should only be a fraction of that of a house, because of much less size and weight and probably less care required in handling.

### 2. Cost of remodeling houses:

The cost of remodeling varies from negligible to well in excess of the value of the house. The type of remodeling with which we are mainly concerned here is that which is desirable along with the changing of access from the front to the rear of the lot. In some cases practically all that is required is a change in the location of the front door or walk. In other cases some rearrangement of the first floor rooms is desirable to get a decent result.

### 3. Cost of street and sidewalk changes:

In most of the changes suggested in this thesis the additional sidewalk paving would most likely be the biggest expense in the street changes. Relatively little new street pavement would be required because most street changes would involve the removal of pavement.

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<sup>1</sup>Manners, D.X., "Cash and Carry Houses," Journal of Lifetime Living, April, 1956

TABLE 1Cost of Moving a House

Cost in dollars;

Items of cost	House too high to go under tel. wires	One story house without attic	Move house short dist. so tel. wires need not be cut	Jack house up and turn 180 degrees on foundation
Cost to move	2500	2500	2500	probably somewhat under 2500
Cut wires, they are 18 ft. high	1000	. . .	. . .	. . .
New foundation	1500	1500	1500	same foundation used, need only be patched: 500
New lot	3000	3000	. assume same lot . .	
Reconnect utilities	1000	1000	1000	well under 1000 (same connect'ns used)
Total cost	9000	8000	5000	approx. 3000

( There is an economy in moving several houses at a time where wires must be cut because one cutting will serve for all )

### C. Resistance of Residents to Change

Perhaps the most serious problem of all is that of enlisting the cooperation and goodwill of the residents and property owners of the affected neighborhoods toward making the changes. But this cooperation is absolutely necessary for success of any neighborhood conservation program. Therefore every effort should be made by all organizations and individuals concerned, to bring about the necessary spirit of cooperation before any attempt is made to carry out the actual physical work.

### 3. EFFECTUATION

#### A. Public Powers in Conservation

The U.S. Housing Act of 1954 provides aid to municipalities undertaking redevelopment, rehabilitation, and conservation of neighborhoods if these projects are part of an approved Urban Renewal plan. The Federal Government pays two-thirds of the net cost to the municipality for any projects.

Most of the areas concerned in this thesis would be of the type that is classed under conservation, that is those needing various improvements and facilities added to the neighborhoods to prevent any further deterioration. So federal aid is available to considerably defray the municipal costs of changes. This would include street changes, park additions, school construction, etc. Federal loans are also available not only for surveys and plans but also for plans to carry out voluntary repair and rehabilitation programs, and for plans to carry out the enforcement of state and local laws relating to use and occupancy.<sup>1</sup>

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<sup>1</sup>Siegel, J.M., Governmental Participation in Urban Renewal, (Chicago, 1954), pp. 87, 88

### B. Private Investment for Profit

Life Insurance Companies have been investing their reserves in housing projects of moderate rental for many years now, and since World War II some Mutual savings banks have also entered the field. These are redevelopment and renewal projects made possible by public acquisition of land and resale to private investors. However, in recent years these investors have lost much interest for several reasons:

A policy followed by some local authorities of seeking commitments prior to the assembly and clearance of land causes the investor to be in effect the sponsor of the whole undertaking. Thus he is subjected to public criticism, and legal and administrative delays, while his money is tied up for several years with consequent loss of income.

Even more important is the fact that investors want more return on their money than has been commonly supposed because of the delays and particularly the uncertainty. There is no assurance of an adequate return, because of the numerous unpredictable social, economic, and political influences that may occur over time in a long term investment. Unpredictable changes include present or potential rent controls, operating and maintenance costs, and changes in standards of living with consequent different demands by tenants.

In order to induce private investment funds into renewal work delays and red tape must be substantially reduced, and investors must not be asked to shoulder responsibilities which are the purview of local governmental agencies.<sup>1</sup> When these requirements are met we may begin to think of getting insurance companies, banks, and perhaps small builders - who traditionally have worked in the virgin lands of the city periphery, interested in the conservation areas. The banks, who have much of their money tied up in all types of urban real estate, should be potentially very interested in the conservation measures suggested here.

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<sup>1</sup> Colean, M., Renewing our Cities, (New York, Twentieth Century Fund, Inc., 1953), pp. 91-93



### C. Cooperative Effort

A method of effectuation which should be very promising is the formation of cooperatives of property owners. Varying degrees of cooperation, from the scale of a one block area all the way up to that of an entire neighborhood, would be useful in improving residential areas; in fact, a moderate amount of cooperation by the majority of people is essential. The design proposals shown are based largely on the concept of at least a moderate degree of cooperation.

Carrying out these design ideas should provide the residents with good practice in the concept of cooperation, of which relatively little exists in this country where a tradition of "rugged individualism" still prevails.

CHAPTER THREE  
CATALOGUE OF DESIGN PROPOSALS

1. METHODS OF SEPARATING HEAVY VEHICULAR TRAFFIC  
FROM NEIGHBORHOOD FUNCTIONS

A. Routes Parallel to Long Dimensions of Blocks

Figure 7 - Take full block for right-of-way.

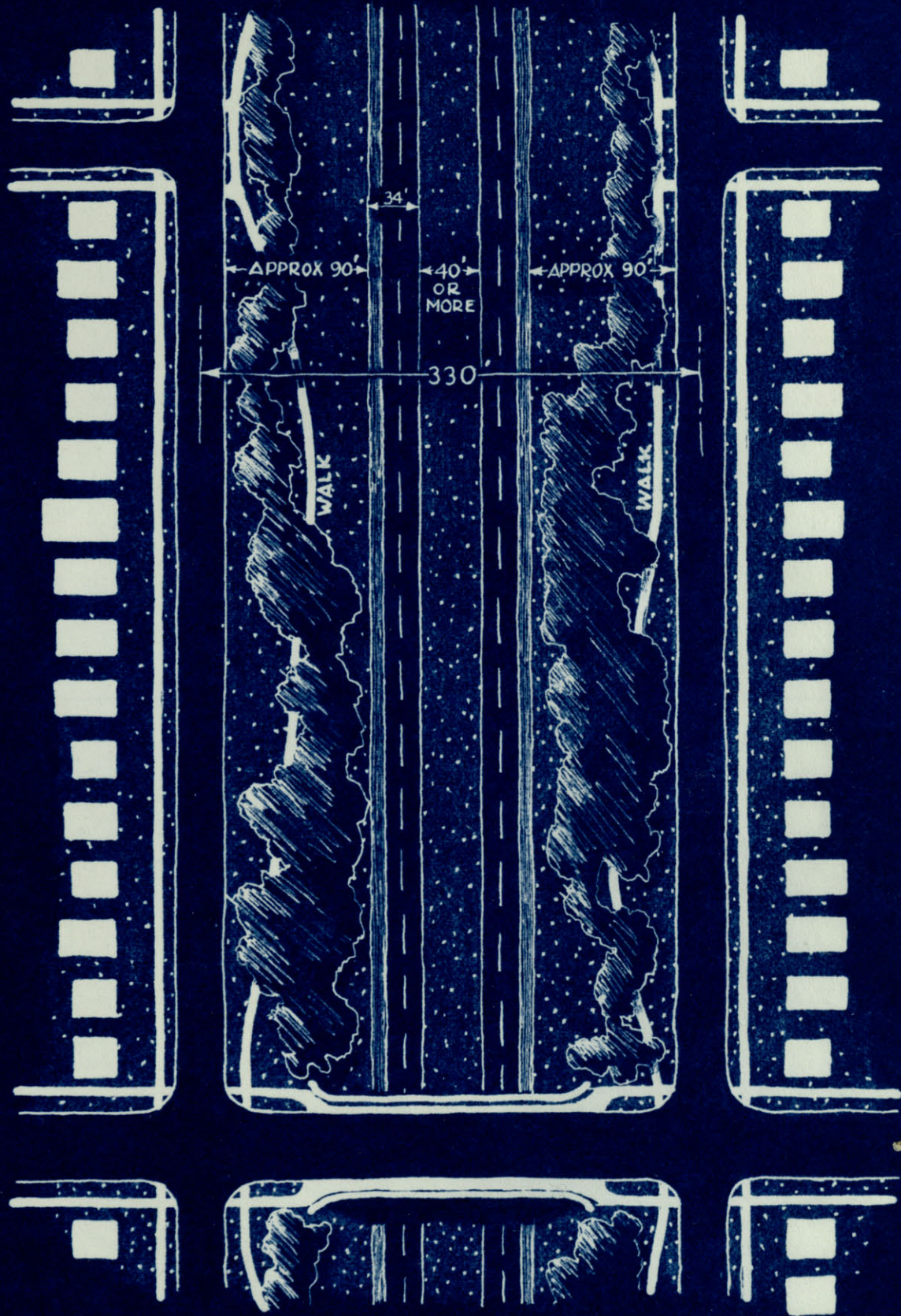
This is the most expensive but, by modern standards, generally the only thoroughly satisfactory way of providing for a heavily travelled highway through residential areas. The wide landscaped space between highway lanes and service roads provides good separation of houses from traffic noise and dust, and space for snow removal in cold climates. If the highway is depressed and the slopes are planted with dense vegetation, a great deal more sound insulation will be the result.

There is ample room for access ramps to the highway and a wide median strip. There is also room for rapid transit tracks in the median if so desired. This method will provide for a highway that will meet the highest design standards of the American Association of State Highway Officials.

Figure 8 - Take half block width for right-of-way.

The right-of-way for this method of building a highway costs only about half as much as in figure 7. The disadvantages are:

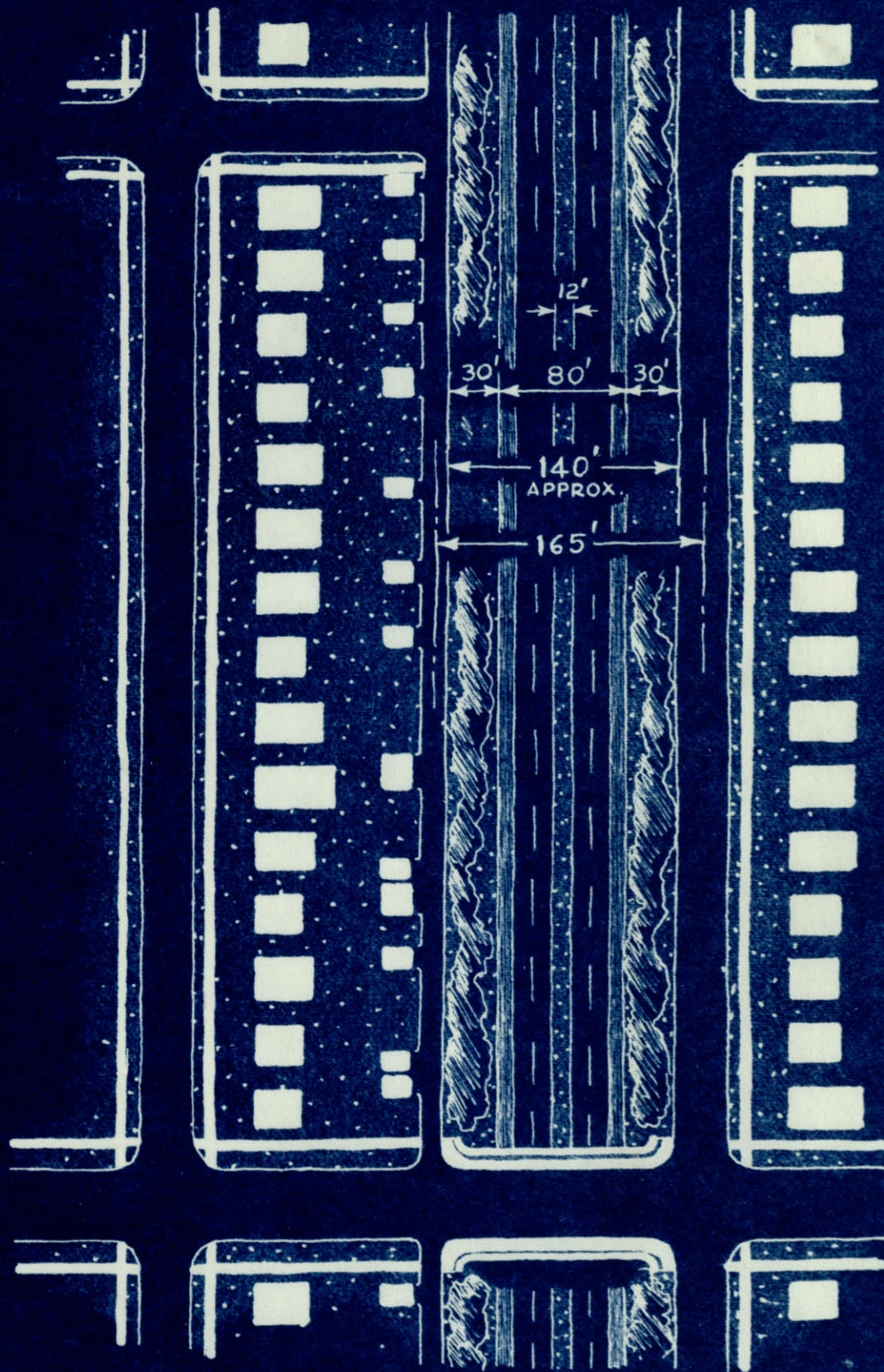
- a. A steeper embankment slope is required and some retaining wall construction is more likely to be necessary. It is generally more cramped.
- b. The median strip has to be narrow.
- c. Closer tolerances are disadvantageous for snow removal.



**FIGURE 7**

TAKE FULL BLOCK FOR RIGHT-OF-WAY





**FIGURE 8**

TAKE HALF BLOCK WIDTH FOR RIGHT-OF-WAY



d. Houses are closer to noise.

e. Rapid transit tracks cannot be provided in the right-of-way except by use of retaining walls which are expensive.

f. Ramps will be more cramped.

Figure 9 - Take back yards for right-of-way in Post World War II areas.

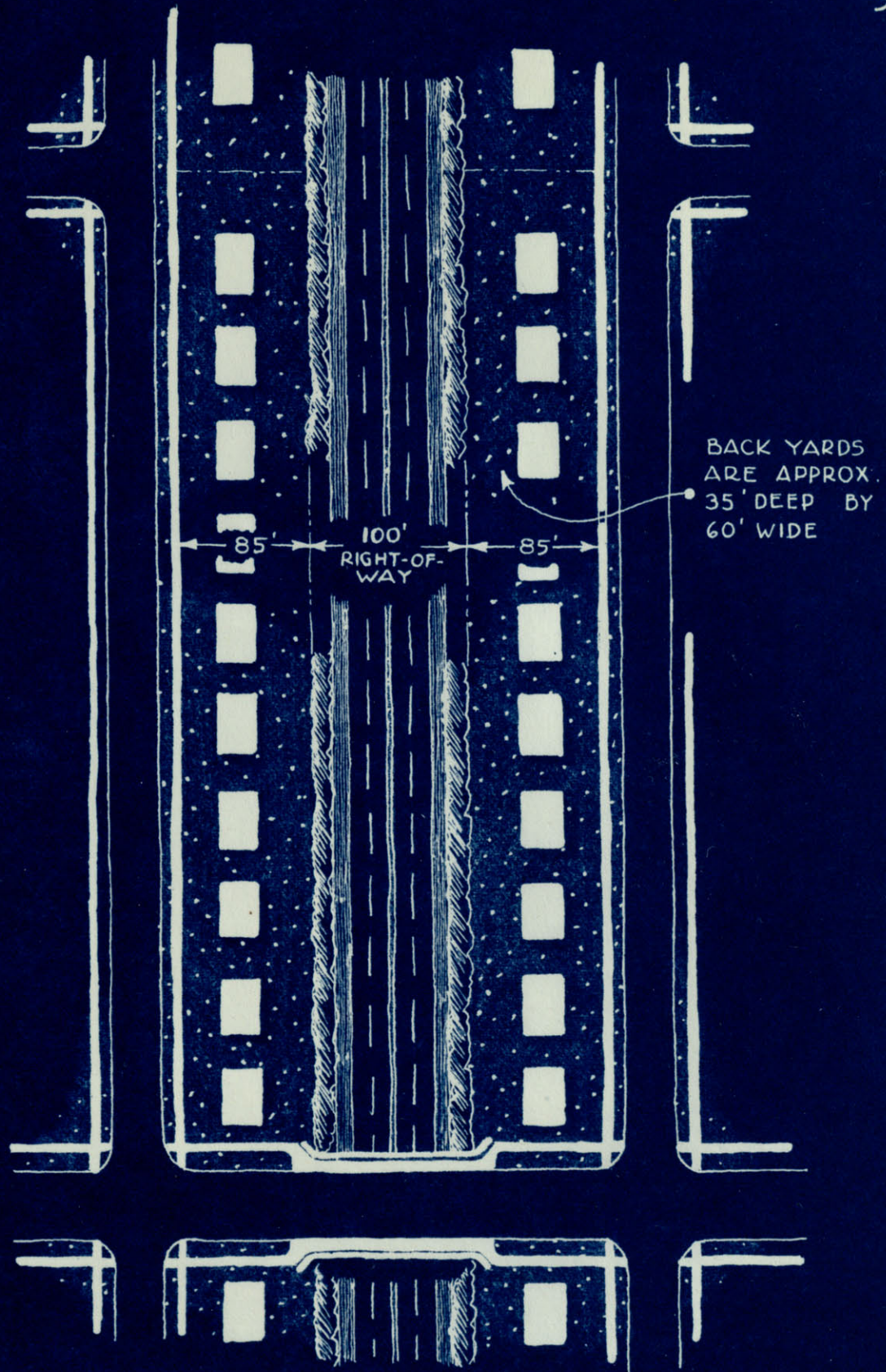
There is a possible interim method for carrying a highway through a post World War II area where lots are wide and back yards deep. After much of the value of the houses is amortized they can be acquired more cheaply and a wide right-of-way made. Advantage is taken of the fact that the space between the backs of houses is generally about 50 percent greater than between their fronts across the streets.

Figure 10 - Service lanes added to arterial street with 100 foot right-of-way.

An arterial street of 100 foot right-of-way can be given limited access without removal of either stately trees or houses fronting, by providing service lanes. These lanes of 18 to 20 feet width, plus a 5 foot sidewalk, will leave approximately 10 feet of front lawn to the houses of average setback. The street right-of-way will have to be extended into the lawns. If these lanes can be given a short intimate "private driveway" character, they may be acceptable to the property owners who, in return for loss of half their front lawns, gain greater immunity from traffic blight on their property.

Uses which depend on highway access, such as gas stations, would be removed.

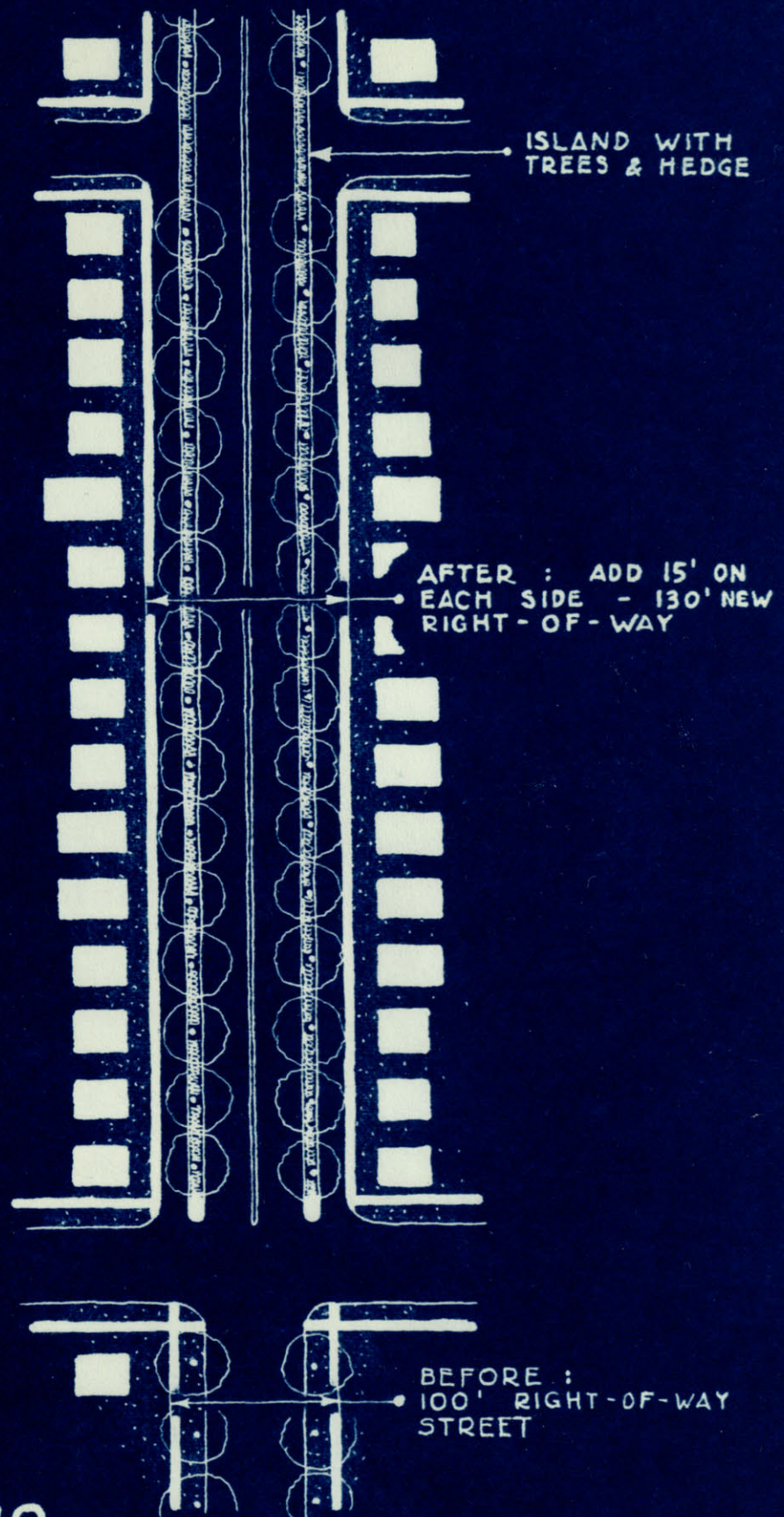
The cost of this method is relatively low. The existing pavement can continue to be used as is. An approximate 15 foot additional strip of right-of-way must be acquired on each side of the street, a new light-duty service street paved, and a new sidewalk placed.



**FIGURE 9**

TAKE BACK YARDS FOR RIGHT-OF-WAY IN POST WORLD-WAR II AREAS





**FIGURE 10**

SERVICE LANES ADDED TO ARTERIAL STREET  
WITH 100 FOOT RIGHT-OF-WAY



Reorientation of houses away from major street, an interim method (Figures 11, 12, 13)

This method turns a major street into a limited access way by reorientation of the access to abutting houses. The rear alley is widened sufficiently to function as a street. Land uses such as gas stations or stores, that depend on access to the major street traffic, would be bought and removed, and the land could be used for playlots, etc. Relocation of houses is another possible use for this land, although it would be preferable to reserve the land for ultimate right-of-way.

This idea probably can only be carried out in states with limited access highway laws.

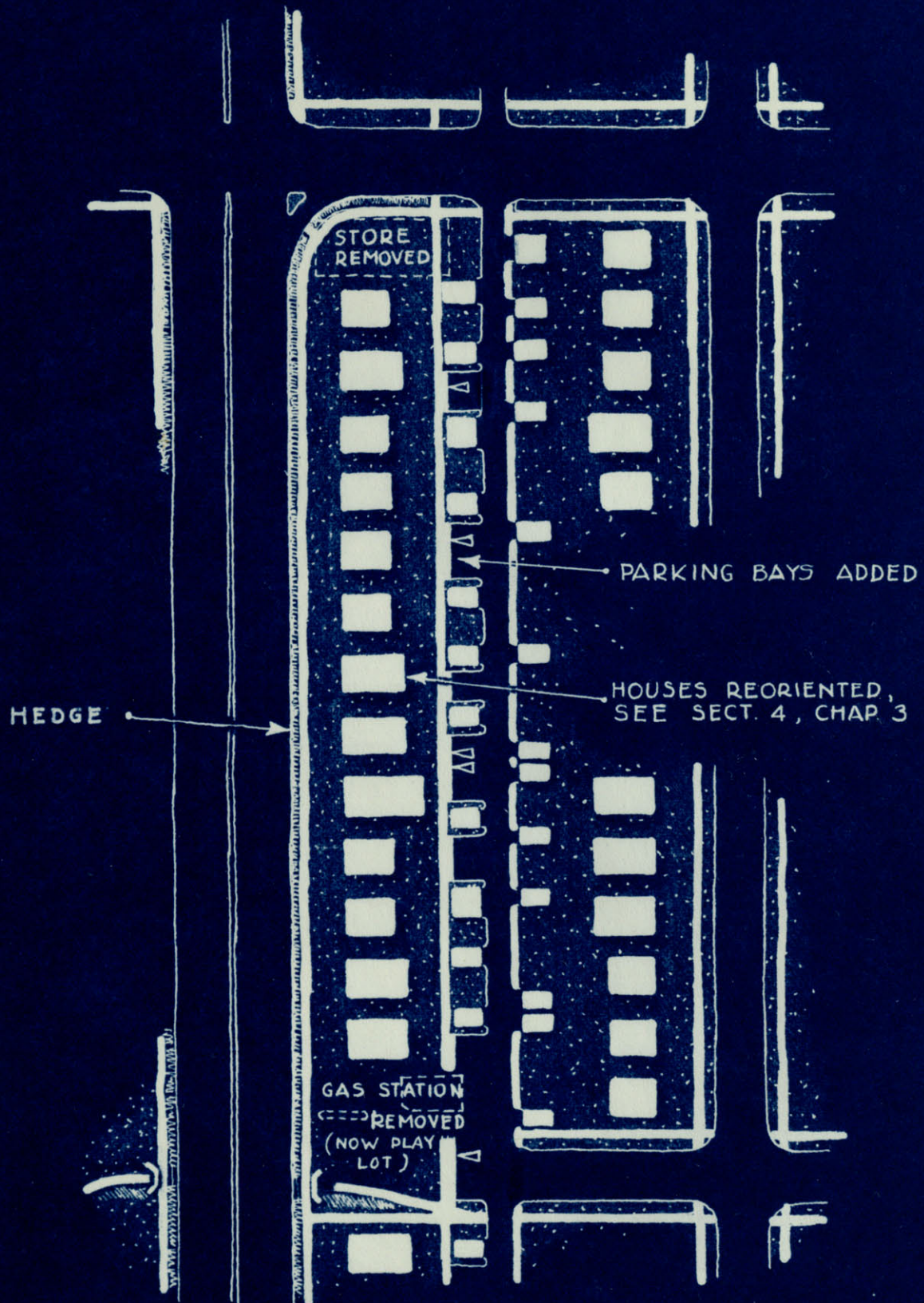
Figure 11 - Reorientation of houses for highway - minimum change.

This shows how house access reorientation may be done by leaving most garages where they are. Parking bays and walks are provided. The backs of the houses must be fixed up to give a neat appearance. It would also be desirable to change the front door location, or to make a more complete revision of the first floor plan to provide a suitable entrance from the rear (see section 4 of this chapter).

Figure 12 - Reorientation of houses for highway - move every third house.

In this scheme a wider right-of-way is taken for the rear service street. Every third house is moved to compensate the remaining house lots for loss of back yard space. This makes a more pleasing spacing of houses in pairs. Suitable entrance to the houses within the existing floor plans is easier to achieve. Considerable freedom in garage relocation is possible.

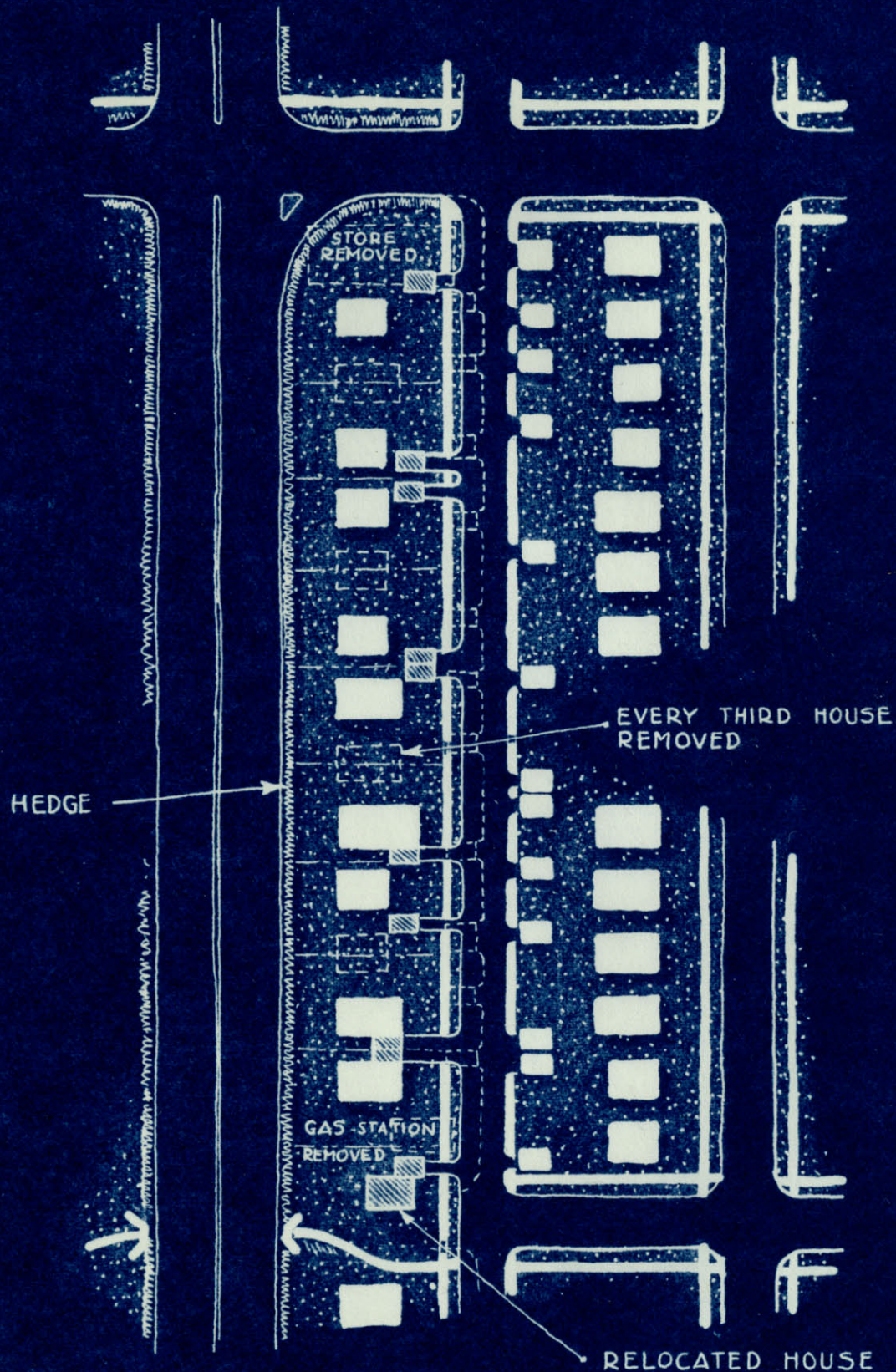
There may be serious legal difficulties in condemning houses in this selective manner. A method that may be used is "Marginal



**FIGURE II**

REORIENTATION OF HOUSES FOR HIGHWAY -  
MINIMUM CHANGE





**FIGURE 12**

REORIENTATION OF HOUSES FOR HIGHWAY —  
MOVE EVERY THIRD HOUSE



land acquisition" law,<sup>1</sup> which is only valid in some states. It could be argued that the necessity of changing access to the rear reduces the size of yards and the additional side yards of houses that remain are necessary for proper living conditions. This being a result of the highway being made limited access, it would come under condemnation of marginal land for the highway.

Figure 13 - Reorientation of houses for highway - rear access by culs-de-sac.

This is a possible cul-de-sac treatment. It requires the moving of some garages on both sides of the alley. Note also that only selected houses have been moved, with a resultant variety of lot sizes.

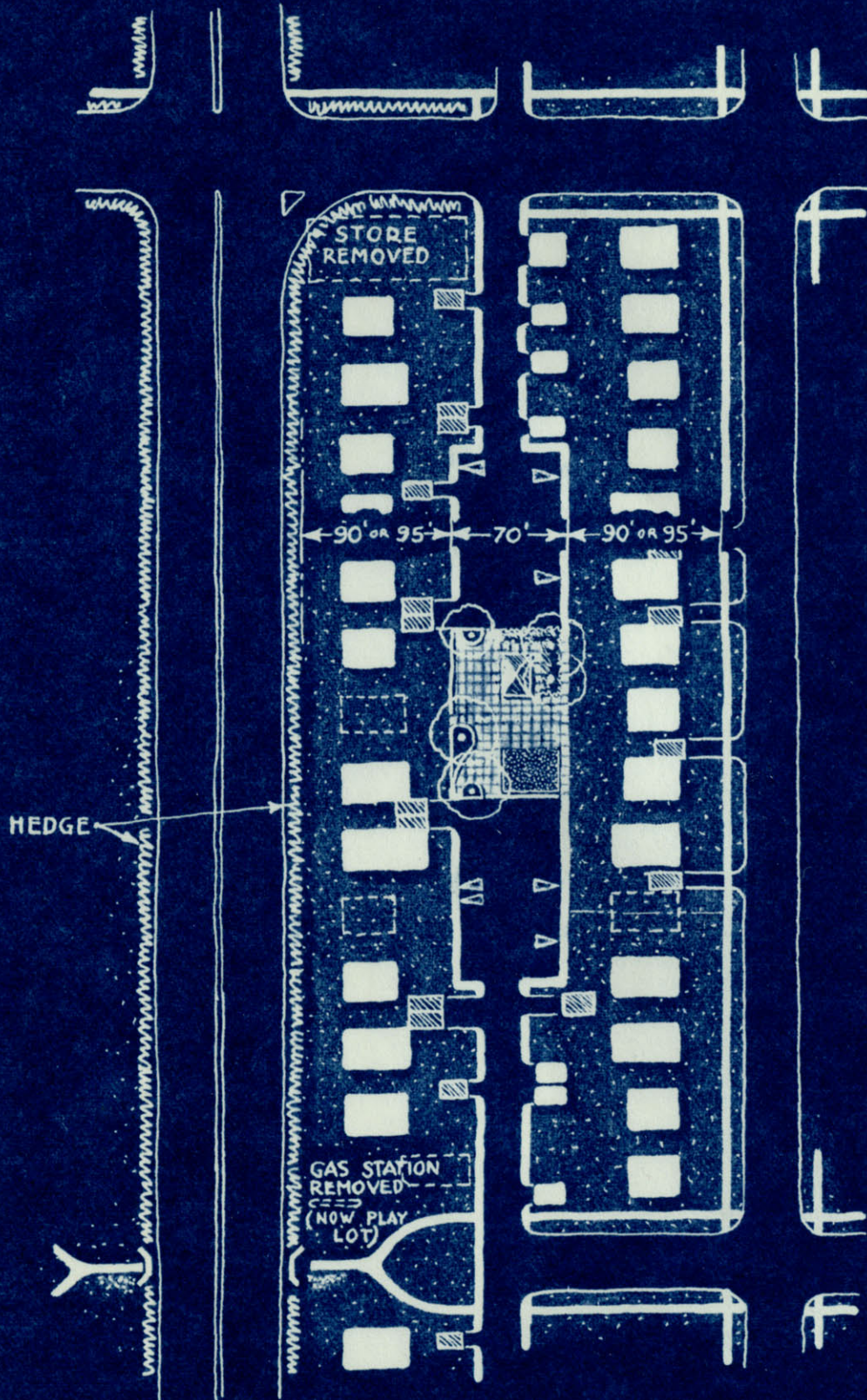
Figures 14-18 - Treatment of front yards of reoriented houses along a major street.

These figures show several devices to effectively seal off access between an arterial street and the houses that front along it and which have been reoriented as in figures 5, 6 and 7. The prime requirement is a fence wall, or other barrier which is unbroken except once every several blocks at connecting streets. This barrier must be designed so that it cannot be crossed too easily, such as by just stepping over it. A four-foot cyclone fence or a masonry wall (figures 9, 10) which does not provide a rail to be used as a step for stepping over, is suitable. The wall or fence would be installed and maintained by the street or highway department and would probably be on the edge of the right-of-way. Vegetation between this barrier and the street would be maintained by the same department. A wall and mass of foliage will provide some sound insulation and will provide a visual barrier (figure 10). In the case of house lots that are above the grade of the street, fill and a retaining wall can be used perhaps with a planting area, to provide the pedestrian barrier and

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<sup>1</sup> Levin, D.R., op. cit., p. 9

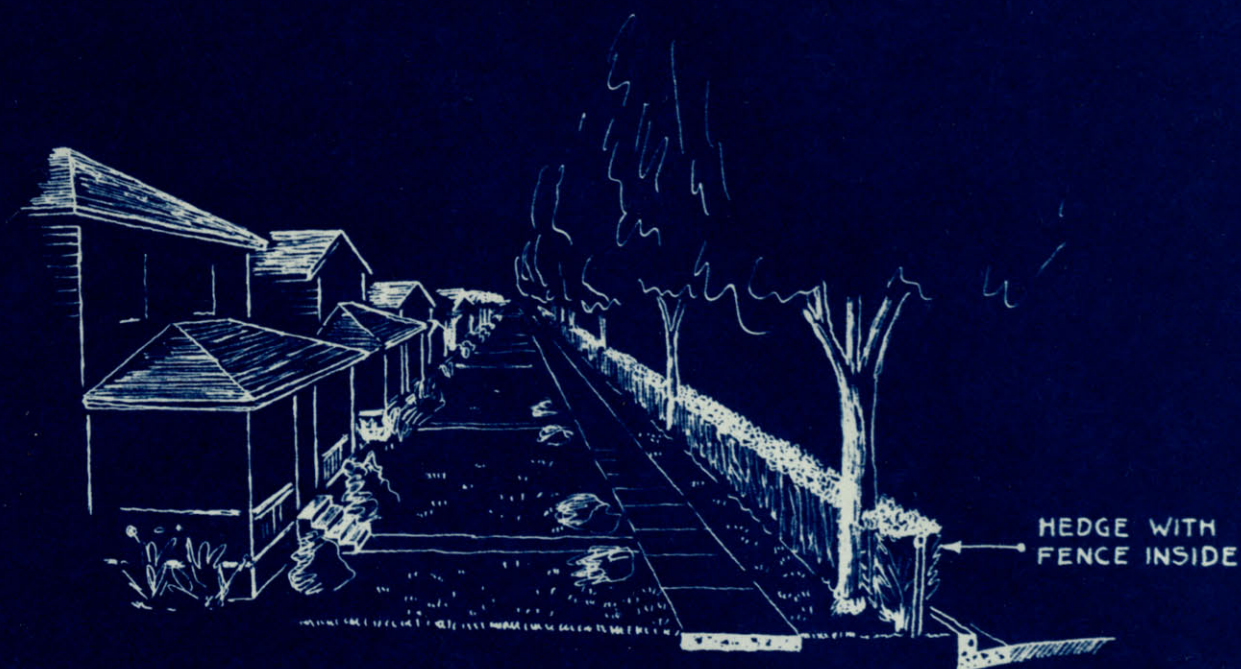




**FIGURE 13**

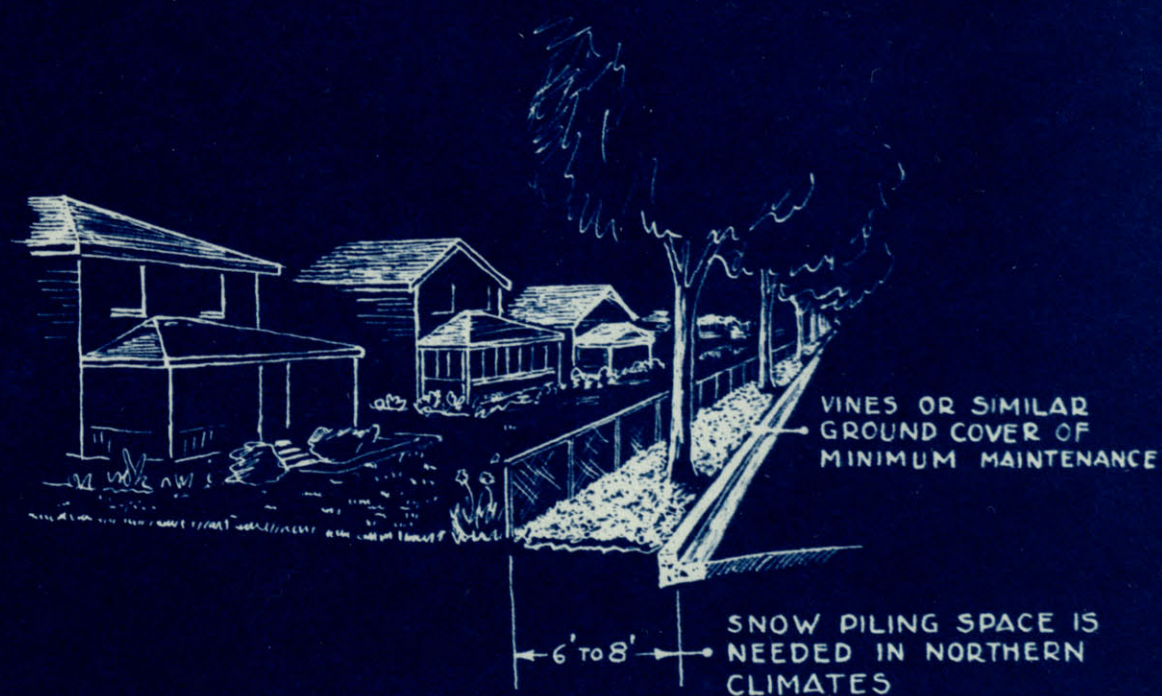
REORIENTATION OF HOUSES FOR HIGHWAY -  
REAR ACCESS BY CULS-DE-SAC





**FIGURE 14**

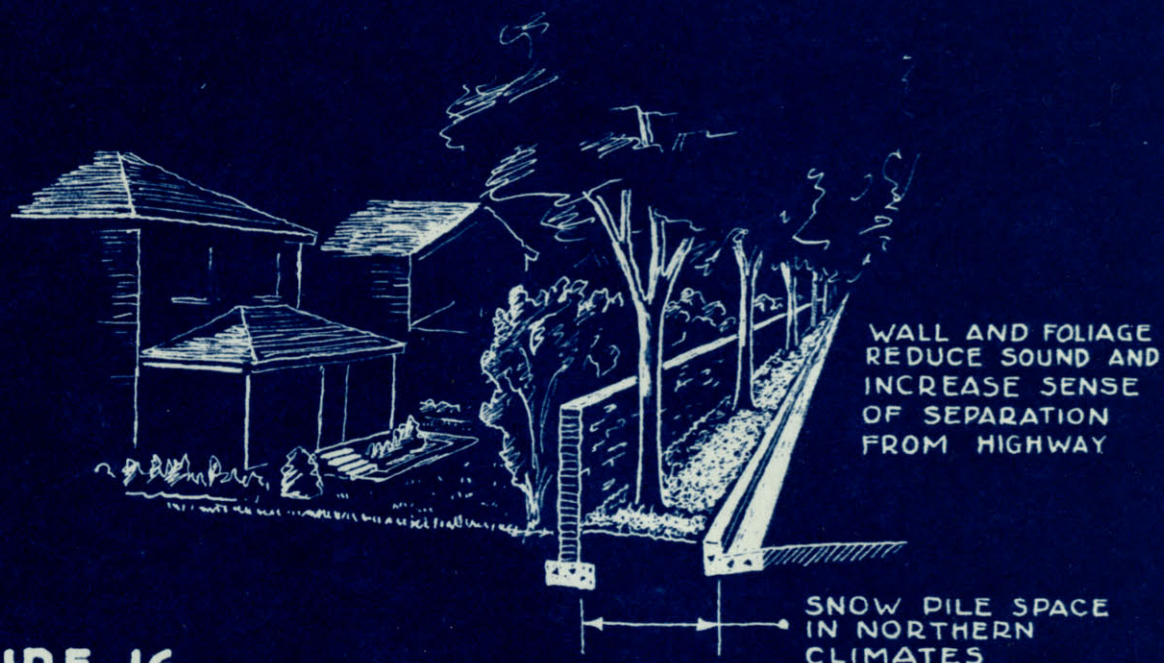
TREATMENT OF FRONT YARDS ALONG MAJOR STREET —  
WITH HEDGE AND SIDEWALK



**FIGURE 15**

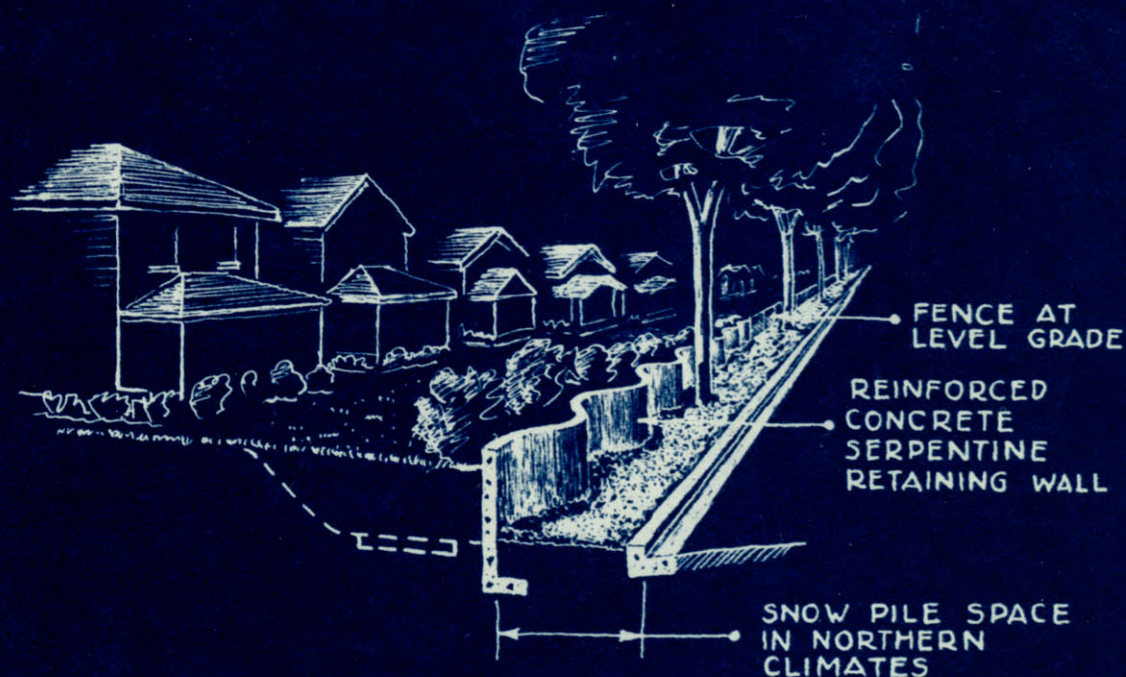
TREATMENT OF FRONT YARDS ALONG MAJOR STREET —  
WITH FENCE AND NO SIDEWALK





**FIGURE 16**

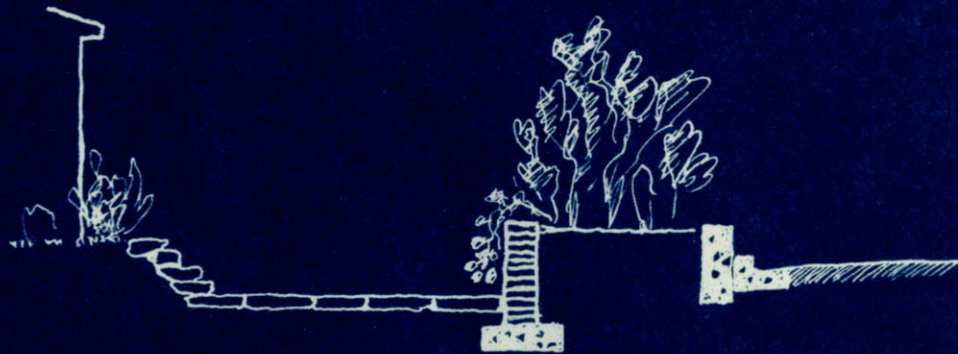
TREATMENT FOR FRONT YARDS ALONG A MAJOR STREET —  
WITH WALL AND MASS OF FOLIAGE



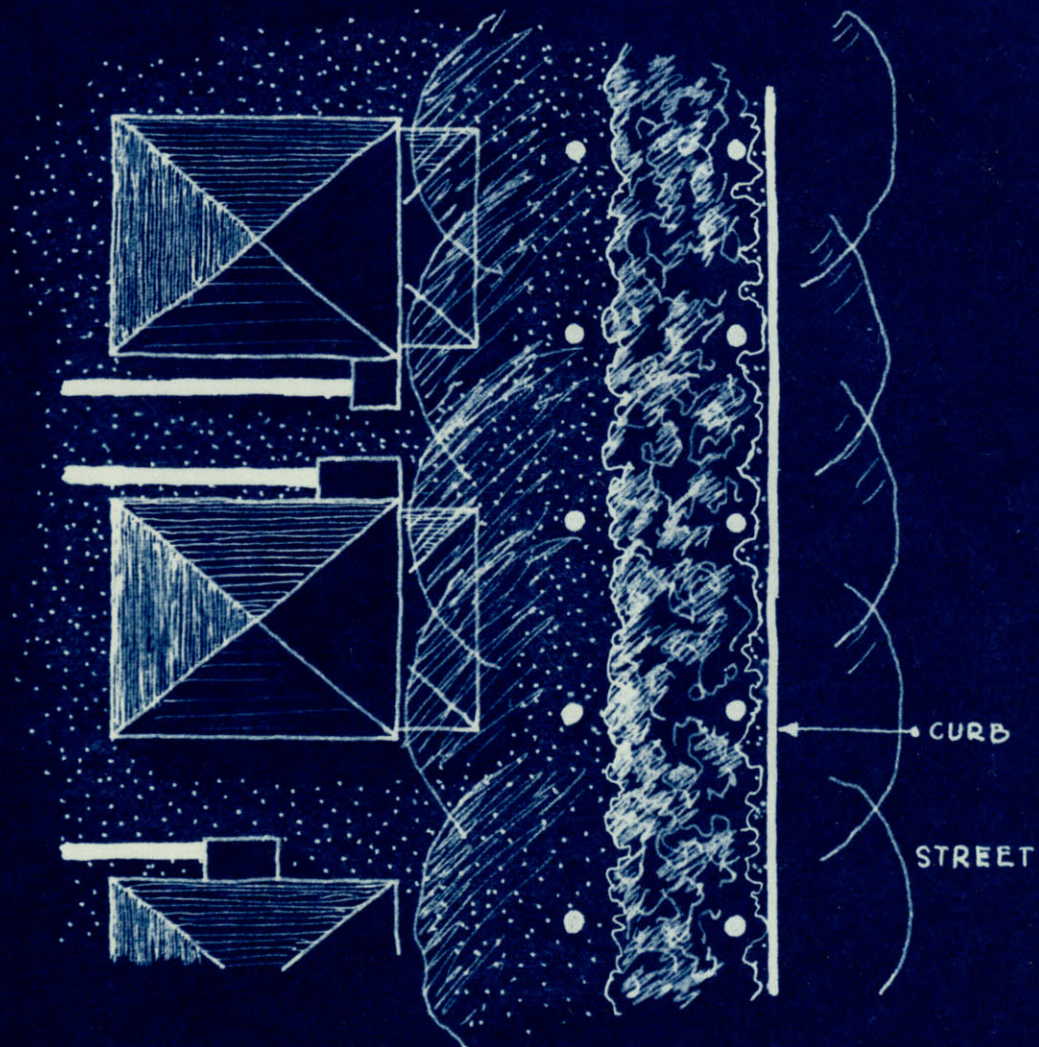
**FIGURE 17**

TREATMENT FOR FRONT YARDS ON EMBANKMENTS  
ALONG A MAJOR STREET





SUNKEN FRONT YARD



GROVE OF TREES AND FOLIAGE (PLAN VIEW)

## FIGURE 18

TREATMENT FOR FRONT YARDS ALONG A MAJOR STREET —  
POSSIBLE VARIATIONS

fair sound insulation (figure 11).

Provision must be made for snow removal in northern climates; a masonry wall would have to be set back several feet from the curb for piling snow from the street.

Usually there should be no need to keep the front walk after this reorientation.

These ideas and variations on them can be combined and changed along the length of a street for variety and interest.

B. Major Routes Perpendicular to Long Dimension of Blocks,  
and no Houses Fronting

Figure 19 - Wide right-of-way.

This highway corresponds in quality to that in figure 1 and it provides for all the features and advantages. However, here there is greater flexibility in the width of right-of-way one may choose to take; it may be taken in increments of the widths of house lots (40 feet or so) as compared to lot depths with increments of about 125 feet. Therefore a high quality highway right-of-way in this direction is apt to be somewhat cheaper than the type that runs parallel to the streets with houses fronting on them.

Figure 20 - Minimum right-of-way for limited access streets.

The extent to which a good highway can be squeezed into a minimum right-of-way is shown here. Some houses are quite close to highway noise and dust. This objection can be minimized by a dense hedge with fence or wall. Ultimately the closer houses can be removed for a wider right-of-way as they amortize their value.

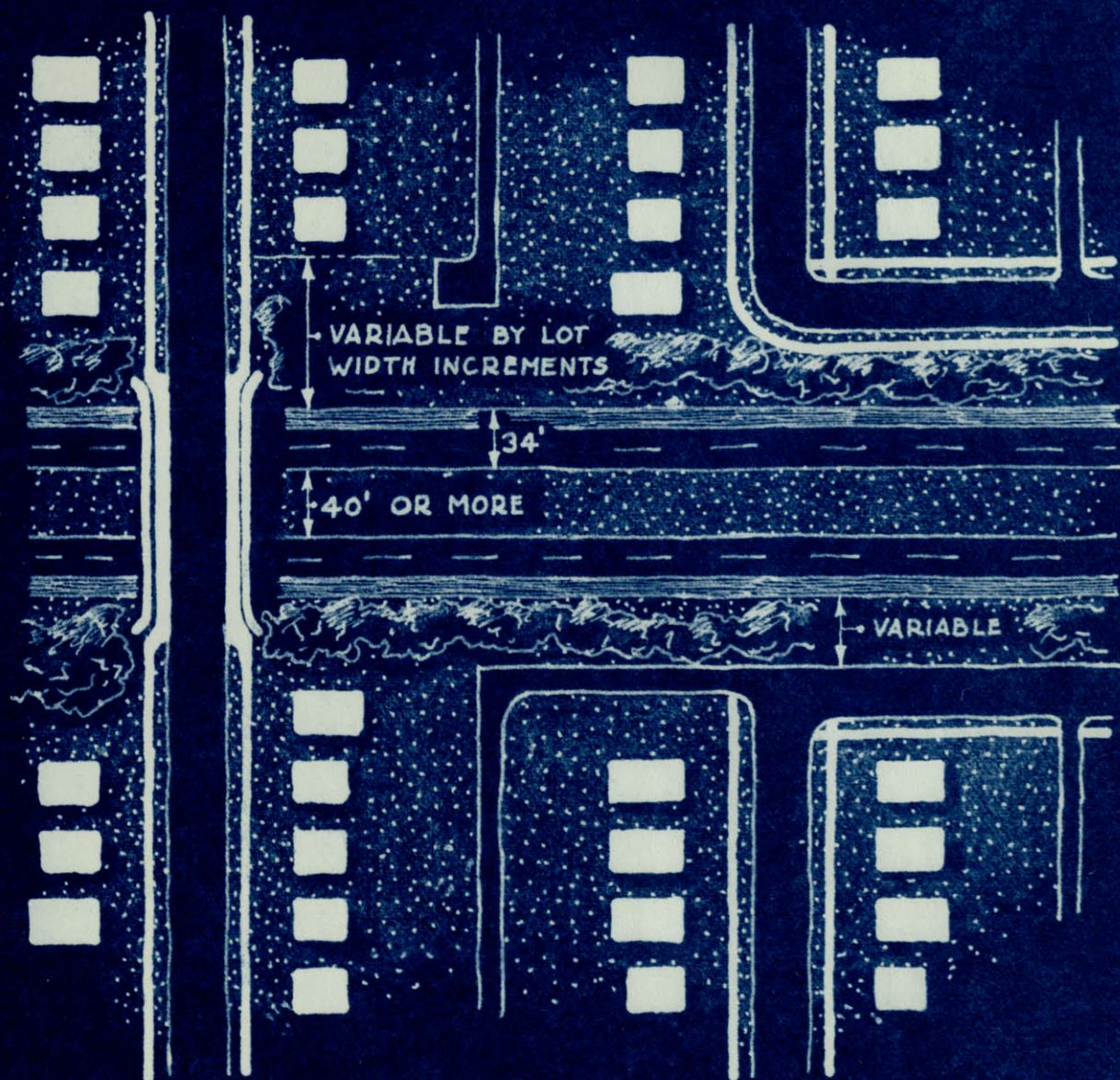
Figure 21 - Cost aspects of various spacing  
of connecting streets to limited access roads.

Loops are preferable to culs-de-sac in the 660 foot long blocks, for tying together the ends of streets that are cut off by making the highway limited access. A right-of-way of one house lot width must be taken for carrying such a loop across the end of a block. The relative economy in numbers of houses taken in the various arrangements is shown.

Figure 22 - Continuous median to prevent crossings  
along major streets.

The basic feature of this idea for a major street is the use of a median strip which can be unbroken for as many blocks as is desired.

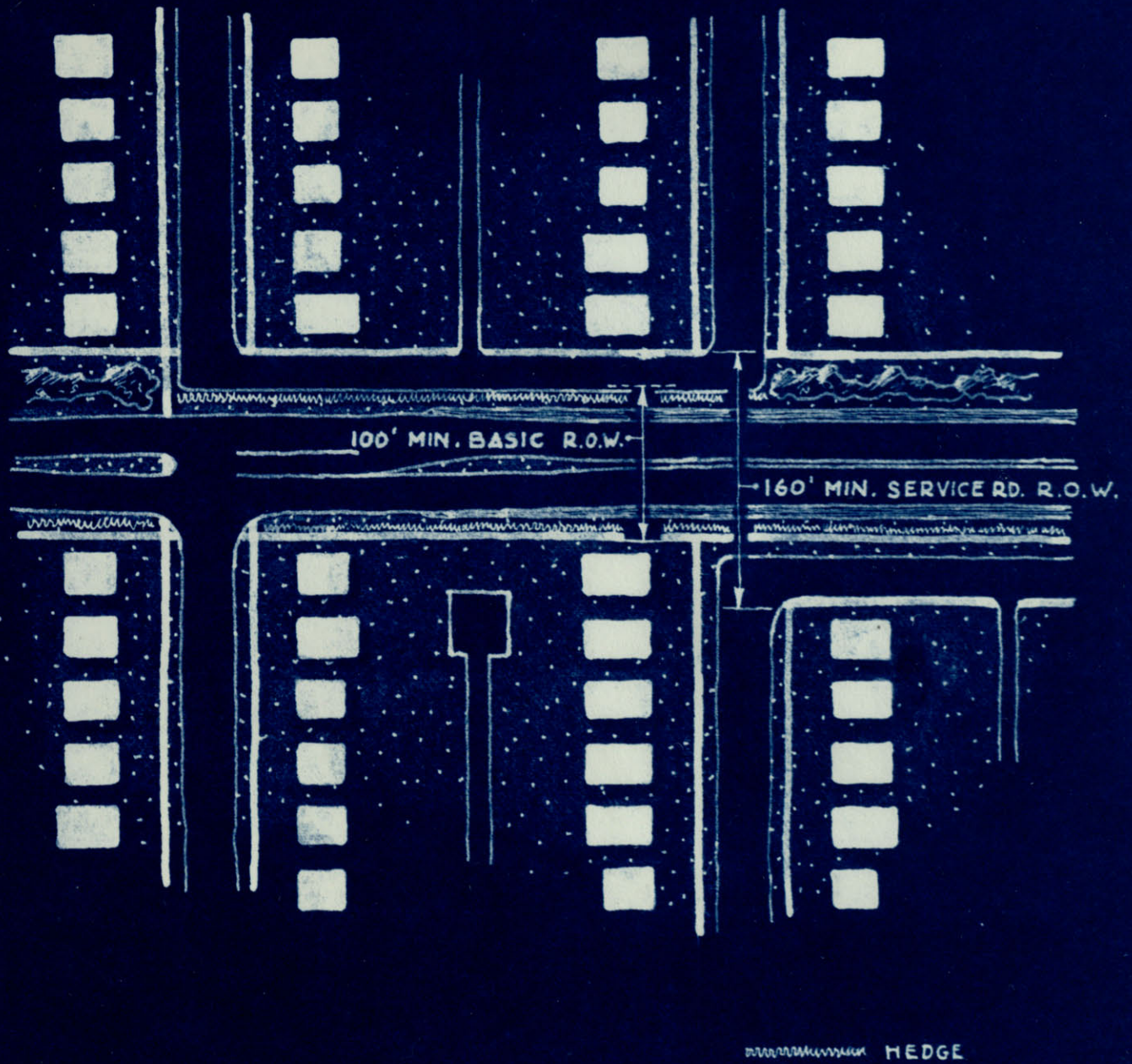




**FIGURE 19**

WIDE RIGHT-OF-WAY MAJOR ROUTE PERPENDICULAR  
TO LONG DIMENSION OF BLOCKS

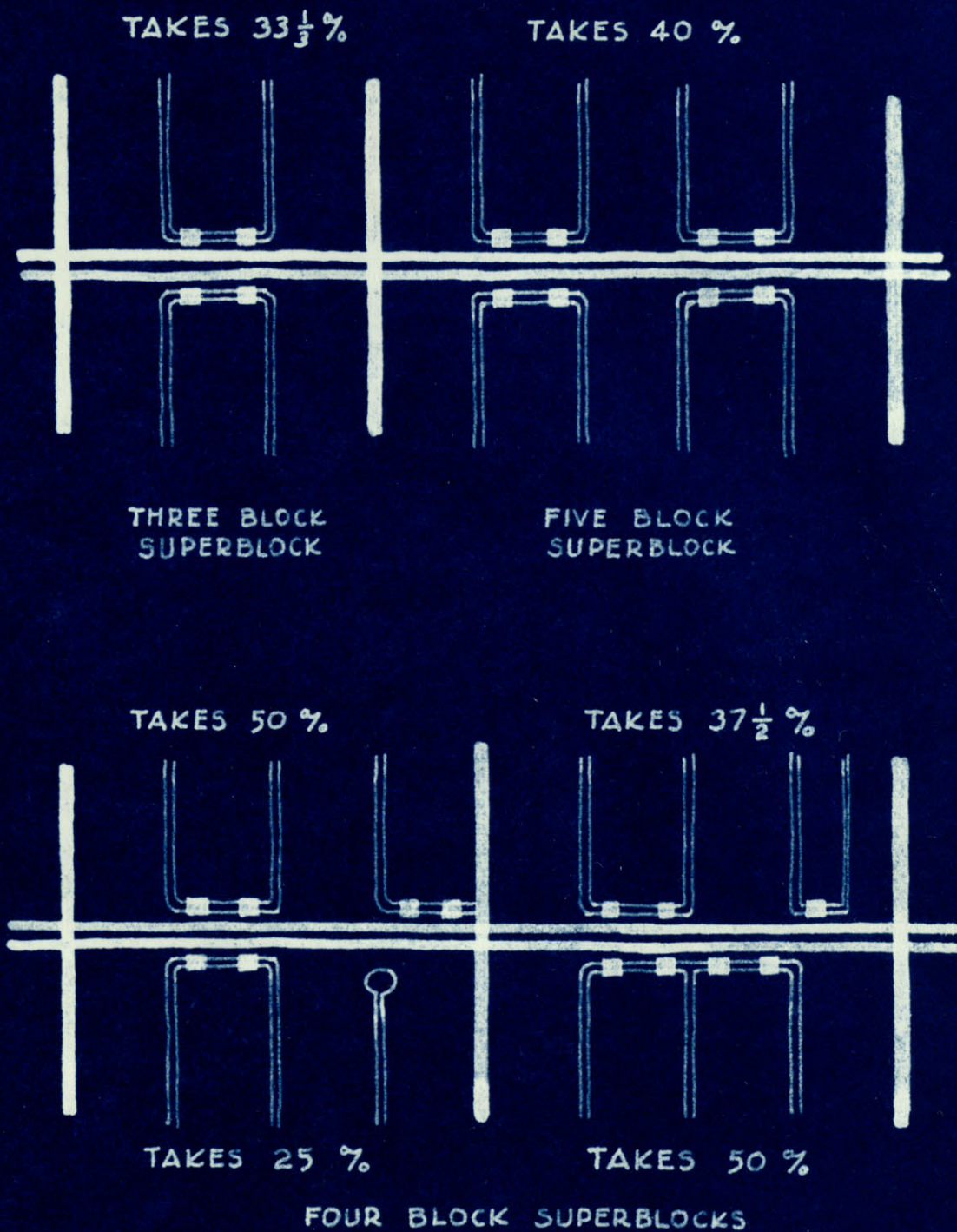




**FIGURE 20**

MINIMUM RIGHT-OF-WAY FOR LIMITED ACCESS STREETS  
PERPENDICULAR TO LONG DIMENSION OF BLOCKS





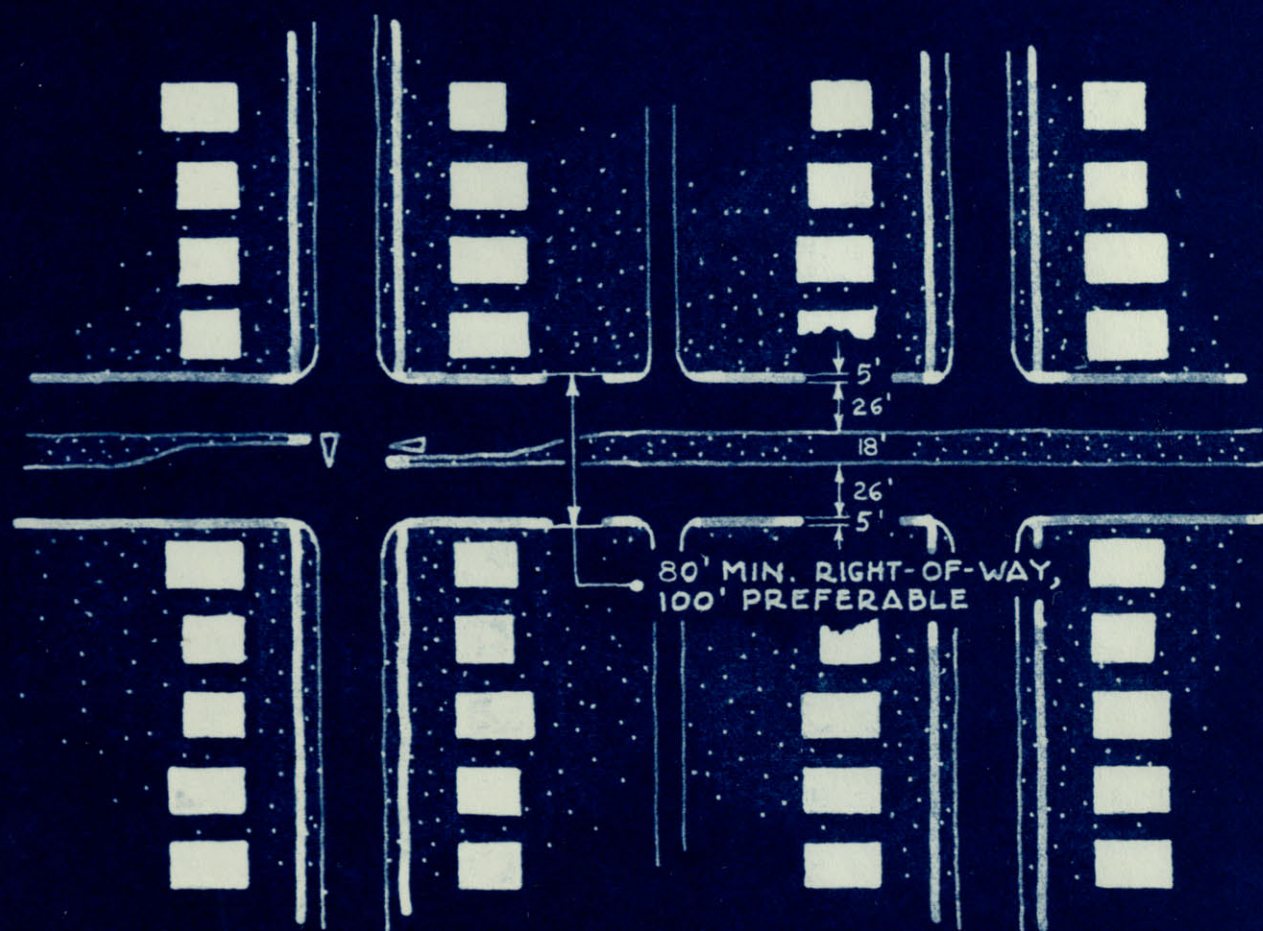
PERCENT OF HOUSES ALONG RIGHT-OF-WAY, THAT  
MUST BE TAKEN FOR VARIOUS SERVICE STREET  
ARRANGEMENTS (SEE FIGURE 20)

■ - HOUSE TAKEN

**FIGURE**  
**21**

**COST ASPECTS OF VARIOUS SPACING OF CONNECTING  
STREETS TO LIMITED ACCESS ROADS**





**FIGURE 22**

CONTINUOUS MEDIAN TO PREVENT CROSSING ALONG  
MAJOR STREETS

This automatically cuts many cross-streets off so that they are used only for local traffic. Safety increases because cars cannot dash out from a cross-street at high speed. The traffic pattern is simplified and the capacity of the major street increased. This arrangement can be achieved on a moderately wide right-of-way (100 feet or so) without any additional land being taken.

## 2. TREATMENT FOR SECONDARY OR FEEDER STREETS

For two-lane streets:

### Figure 23 - Suggestions for flared intersections.

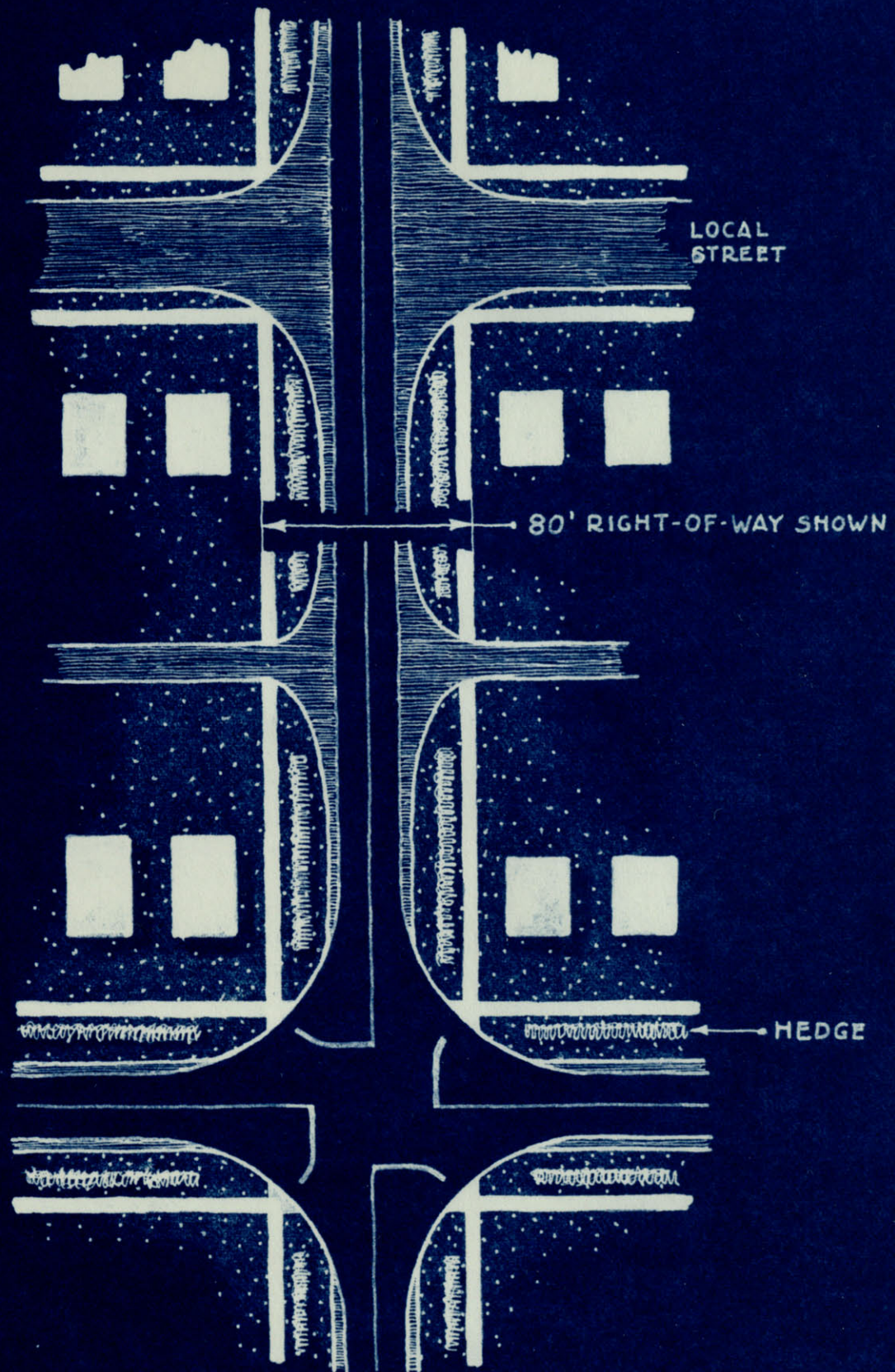
A high quality smooth channel of two traffic lanes is used in the center of the right-of-way. A somewhat lower quality, not as smooth surface is used for the connecting streets, flared intersectional areas, and four-foot shoulder. No parking is permitted on the shoulders : they are just safety margins for driving. The flared intersections give maximum space for maneuvering while at the same time the well-defined through-traffic lanes are decisive; they leave no doubt in one's mind as to which is the through traffic. This plan should be relatively economical because it requires only two traffic lanes of expensive type of pavement.

Hedges planted at the tree line might be used to distinguish visually the feeder street from the smaller cross-streets which are mostly dead ends. They also would act as a partial visual barrier between the houses and street. They would probably be maintained by the abutting residents; this would result in some variations to the types and shapes of the individual segments of hedge along a street. The hedges must not come too close to the intersection if they are high, because visibility must be maintained around corners.

### Figure 24 - Suggestion for parking bays.

Parking bays might be used along some secondary streets, to free the curb of a line of parked cars which tends to be unattractive and a source of danger on any but the most lightly travelled streets. Such a parking bay must be deep enough that the cars can back out of the stalls without getting into the traffic lanes, or the safety advantage is lost. For most streets this will mean the necessity of taking a slight additional strip of right-of-way at the bay. A couple such bays in a long block will also help add interest to the street scene.

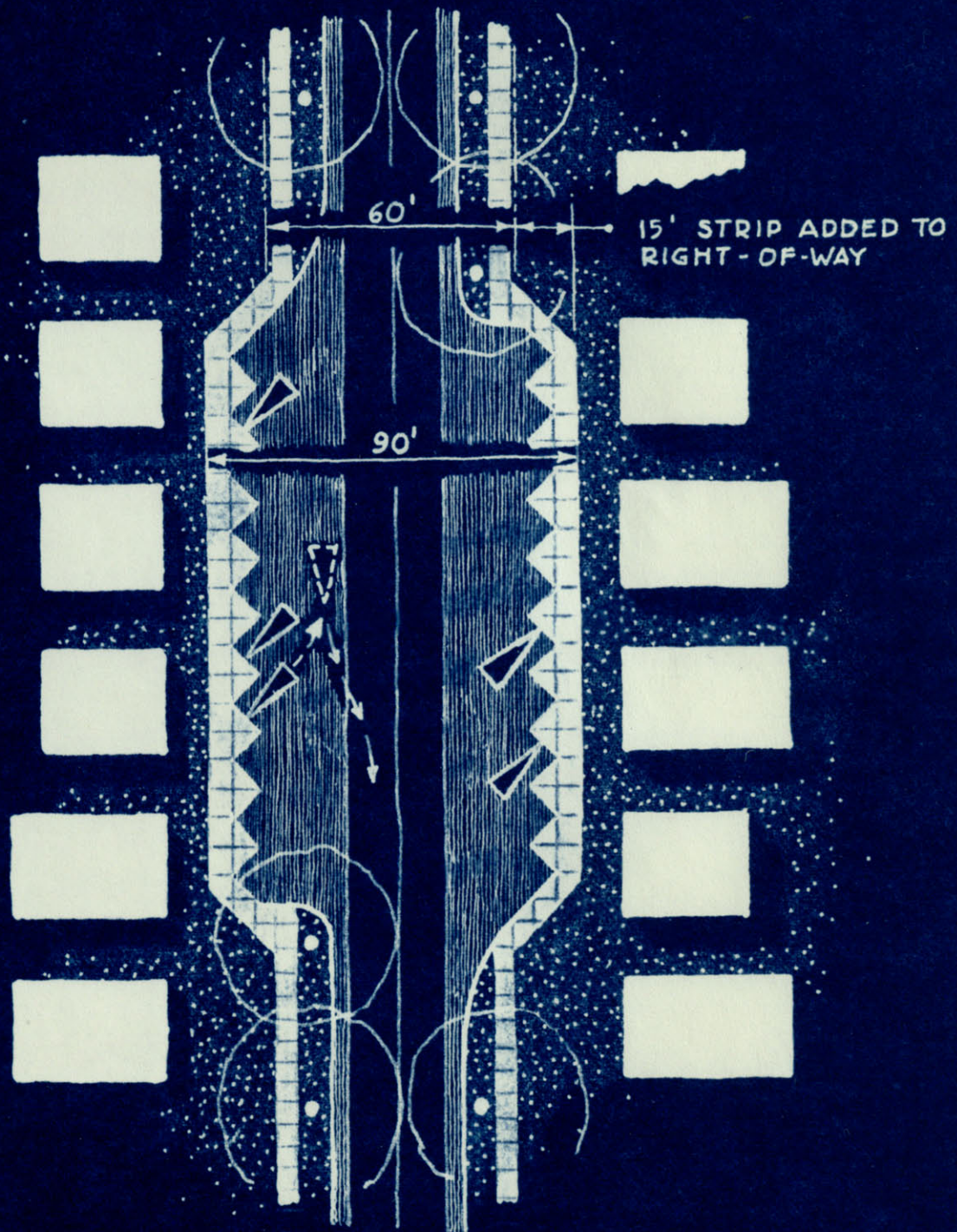




**FIGURE 23**

SUGGESTIONS FOR FLARED INTERSECTIONS FOR TWO-LANE SECONDARY STREETS





**FIGURE 24**

SUGGESTION FOR PARKING BAYS ON SECONDARY STREET

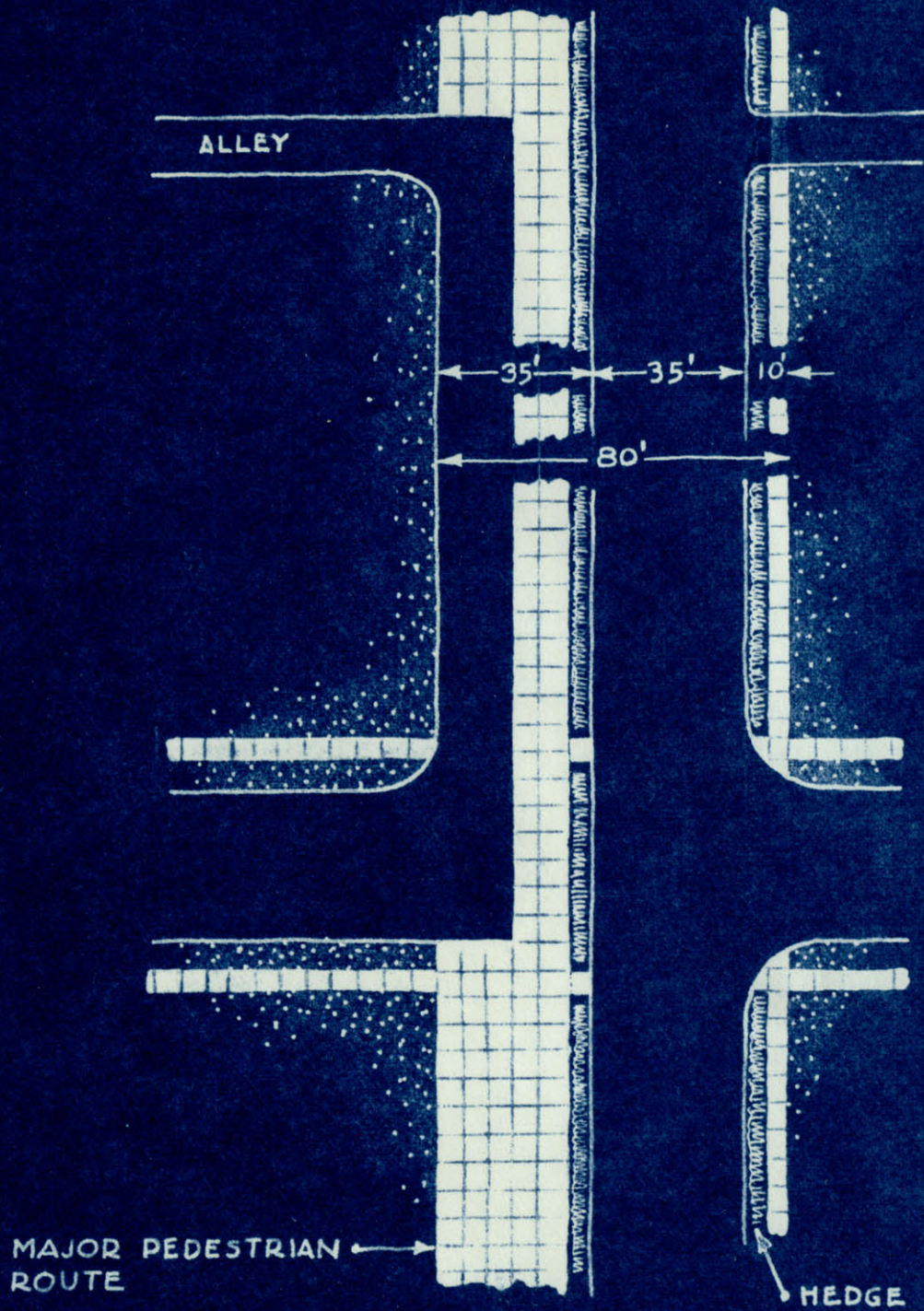
Private driveways into secondary streets should be eliminated if there is an alley in the back of lots for access and where it is otherwise not too difficult.

A relatively inexpensive surface should be satisfactory for such parking bays. Some trees may have to be removed, and sidewalks must be repaved for a short distance.

Figure 25 - Secondary streets made off center  
to permit loop construction on existing right-of-way.

A secondary street may be paved off center for two reasons : one is to permit the application of Louis Kahn's Greenway idea for pedestrians (see figure 61). It also can be used to allow a narrow service road or end of a loop to be applied as shown, without making contact with the through street. This helps to reduce cross-traffic and is an aid in blocking quiet residential streets from through traffic.





**FIGURE 25**

SECONDARY STREET MADE OFF CENTER TO PERMIT LOOP  
CONSTRUCTION ON EXISTING RIGHT-OF-WAY



### 3. METHODS OF BLOCKING THROUGH STREETS AND FOR CHANGING VEHICULAR ACCESS TO BUILDINGS

#### A. Loop Streets

This is usually one of the easiest methods of closing off streets to through traffic. The change usually requires no new pavement, the only cost being the removal of some existing pavement. Loops have the advantage over culs-de-sac that vehicles need not turn or back around to get out, once in. This is especially good for fire engines and snow plows.

Figure 26 - Full loop.

Maximum length should be 700 feet where feasible.<sup>1</sup>

Figure 27 - Half loop.

Figure 28 - A system for connecting loops.

This is a way to connect a series of loops to make deliveries or similar operations simple. One can drive or walk continuously along the loop streets, passing every house, without retracing any steps.

Figure 29 - Loop with turn-around.

The 80 foot minimum diameter circular area at the corner<sup>2</sup> permits the loop to function as a cul-de-sac as well. This has been suggested in some cases such as in Chicago's Woodlawn area study in community conservation.<sup>3</sup> This would be most advantageous where one leg of the loop is an alley. It requires a very small amount of new pavement. Also, a rearrangement of the sidewalks is desirable.

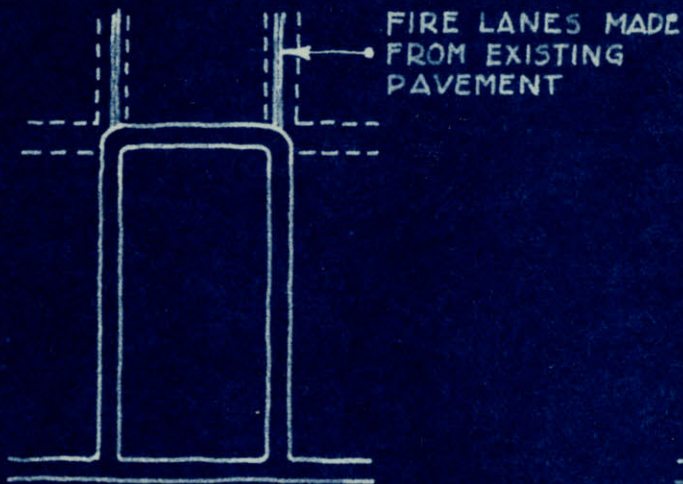
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<sup>1</sup>Lynch, K., Notes on Technical Limitations and Standards in Residential Site Planning (M.I.T., October 1950), p. 4

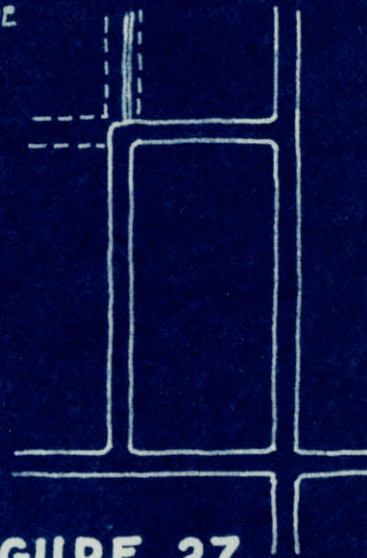
<sup>2</sup>Ibid., loc. cit.

<sup>3</sup>Woodlawn, A Study in Community Conservation, prepared by Chicago Planning Commission and Woodlawn Planning Committee (Chicago, 1946), p. 43 and map in pocket.

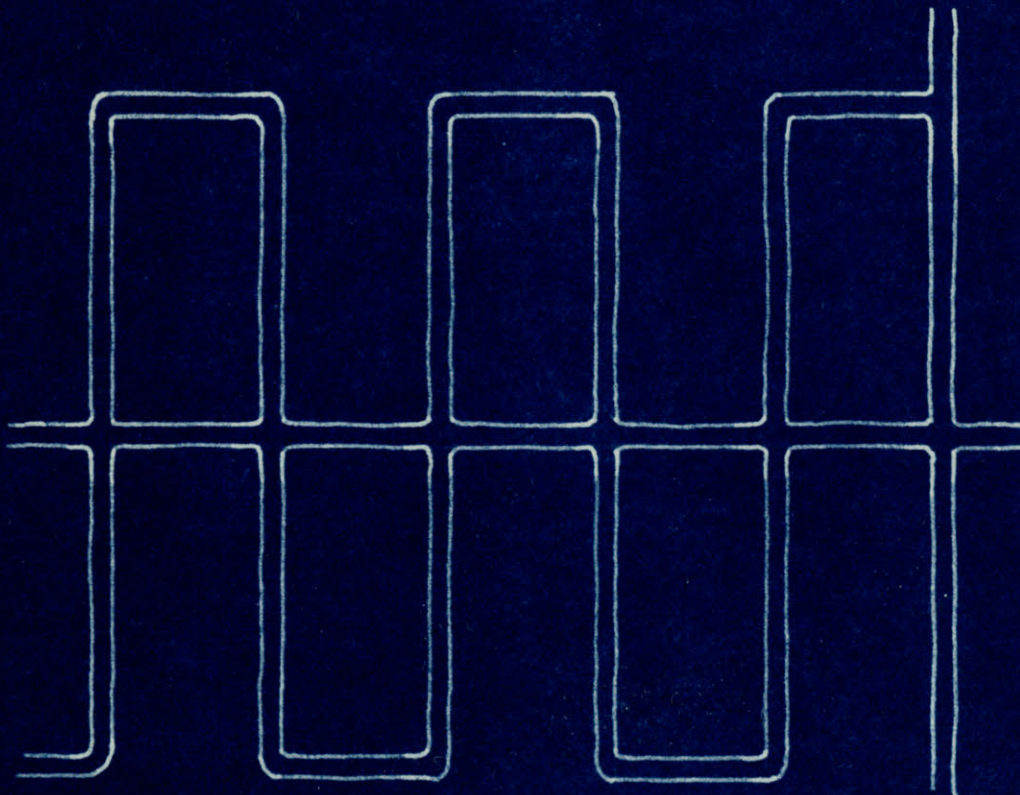




**FIGURE 26**  
FULL LOOP

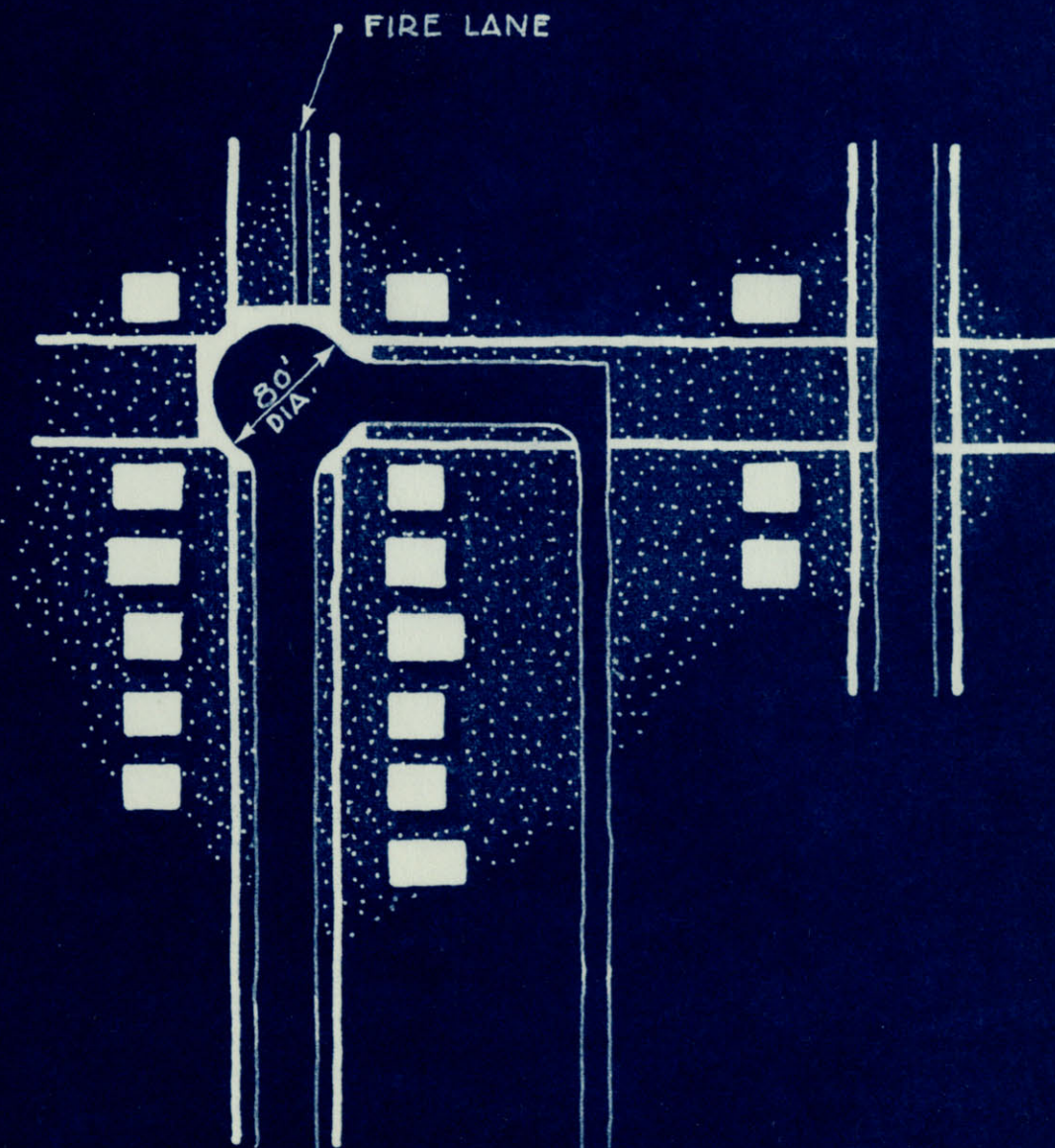


**FIGURE 27**  
HALF LOOP



**FIGURE 28**  
SYSTEM FOR CONNECTING LOOPS





**FIGURE 29**

LOOP WITH TURN-AROUND

Figure 30 - Loop with parking bays.

This method of making a loop street makes use of additional portions of existing pavement to provide useful parking bays. This is the most economical arrangement for conversion to loops, because a minimum of street pavement is removed and no new paving is required. The major cost is a small amount of additional sidewalk area.

Figure 31 - Two loops meet at one ex-intersection.

Suggestions have often been made to treat a single street intersection as the corners for two loops. This is economical to construct but there is one main disadvantage : residents may object to the necessity of driving around a complete block just to get to a house on the opposite street corner because they have been used to being able to drive directly across the intersection previously. This is an important objection if it will stand in the way of effectuation. Any visual barriers that can be incorporated into the design, such as hedges or additional space between loops, may help to reduce this objection if it is a psychological one.

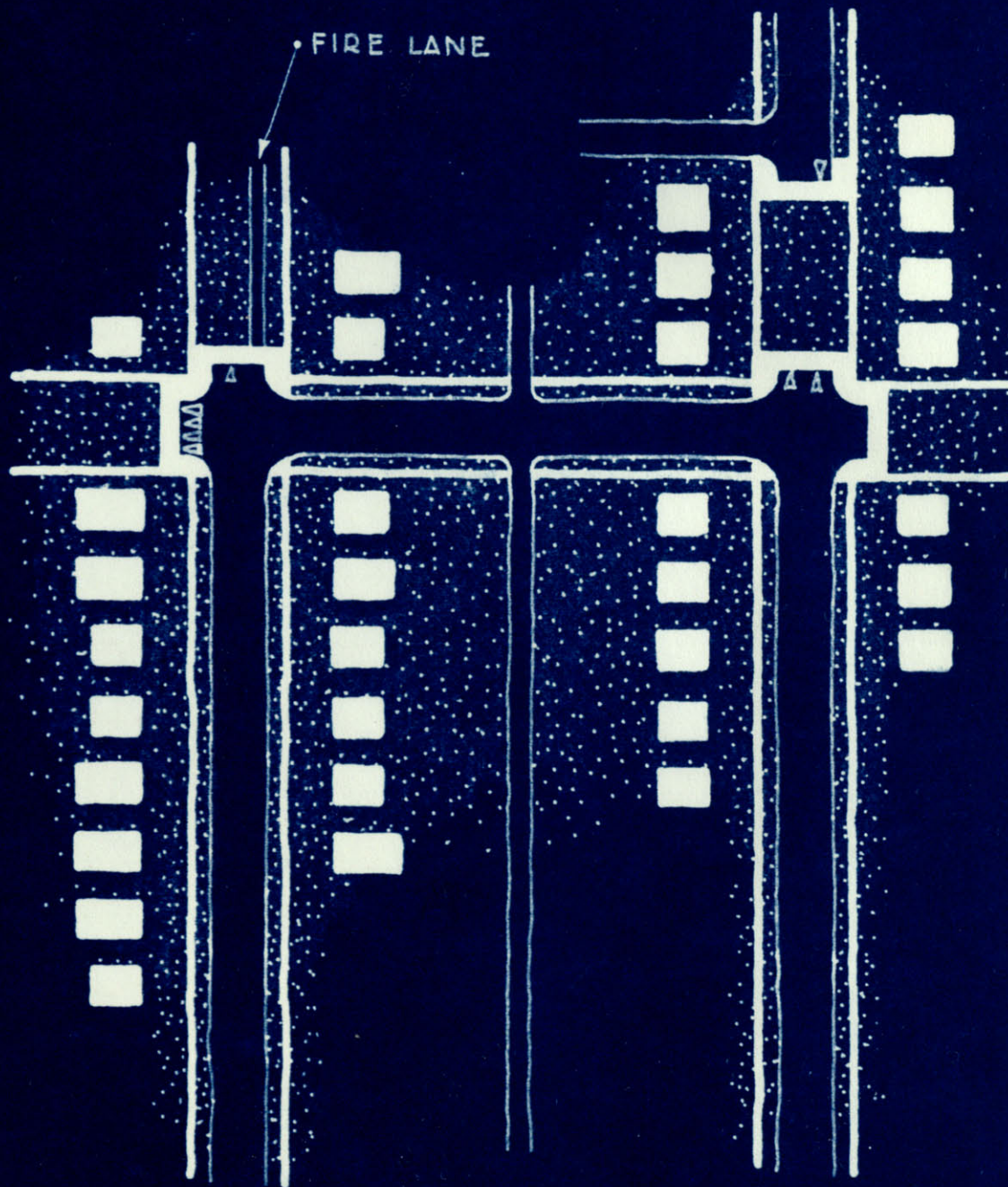
Figure 32 - Two loops meet with space between them by removal of lots.

If one or two corners of an intersection where loops meet have undesirable buildings, dilapidated houses, or vacant lots, etc., then wider corners can be made at the loops in connection with the removal of the undesirable structures. Some new pavement is required, so this is a little more expensive to construct than that in Figure 31.

Figure 33 - Opposing loops.

By removing or relocating several houses a series of alternate loop streets can be developed, the ends of which do not come too close to each other. This generally can be worked most easily in the post World War II areas with their wider lots. There is more room to rearrange houses without spoiling yard space as much as in the middle

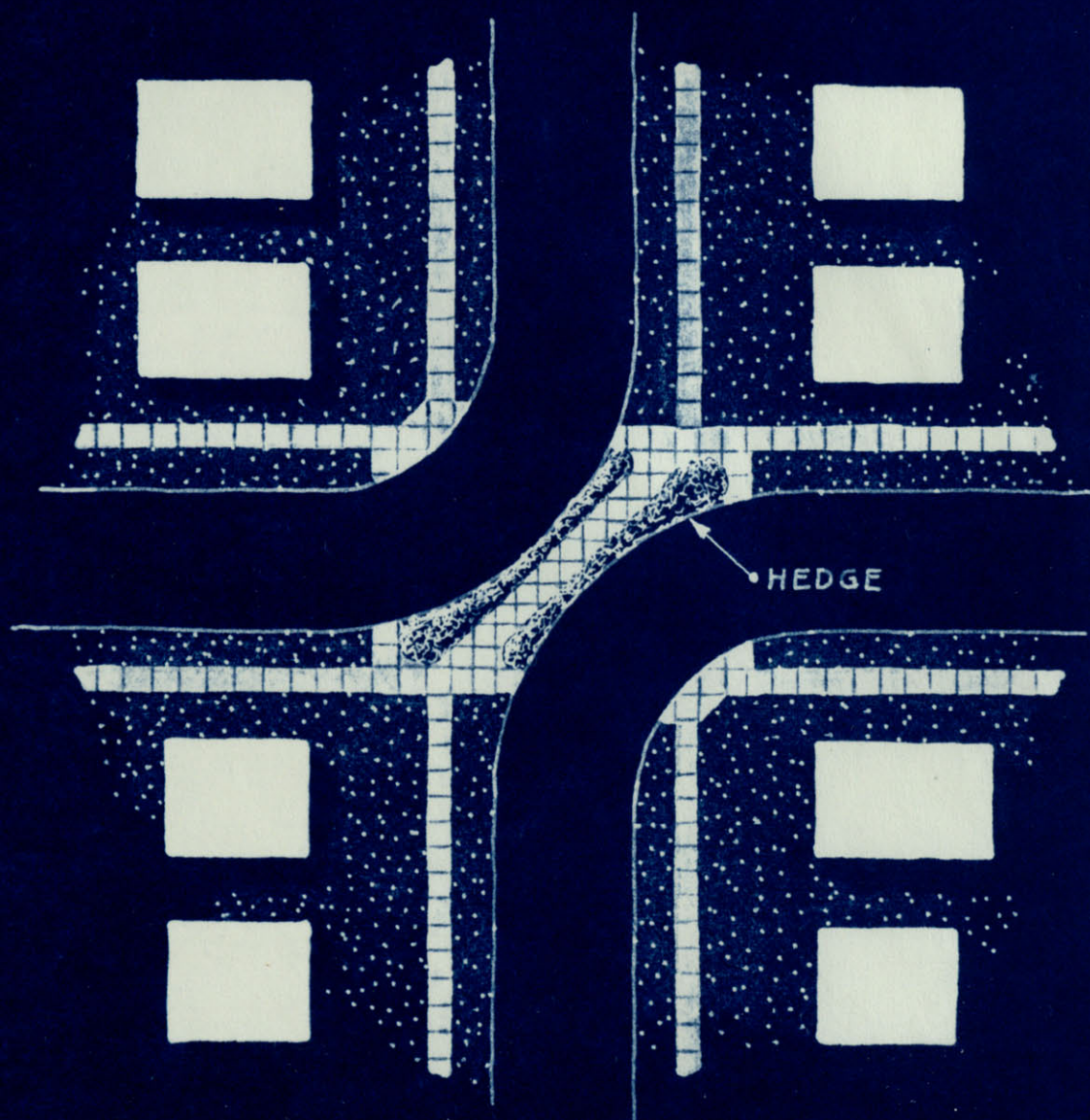




**FIGURE 30**

LOOP WITH PARKING BAYS

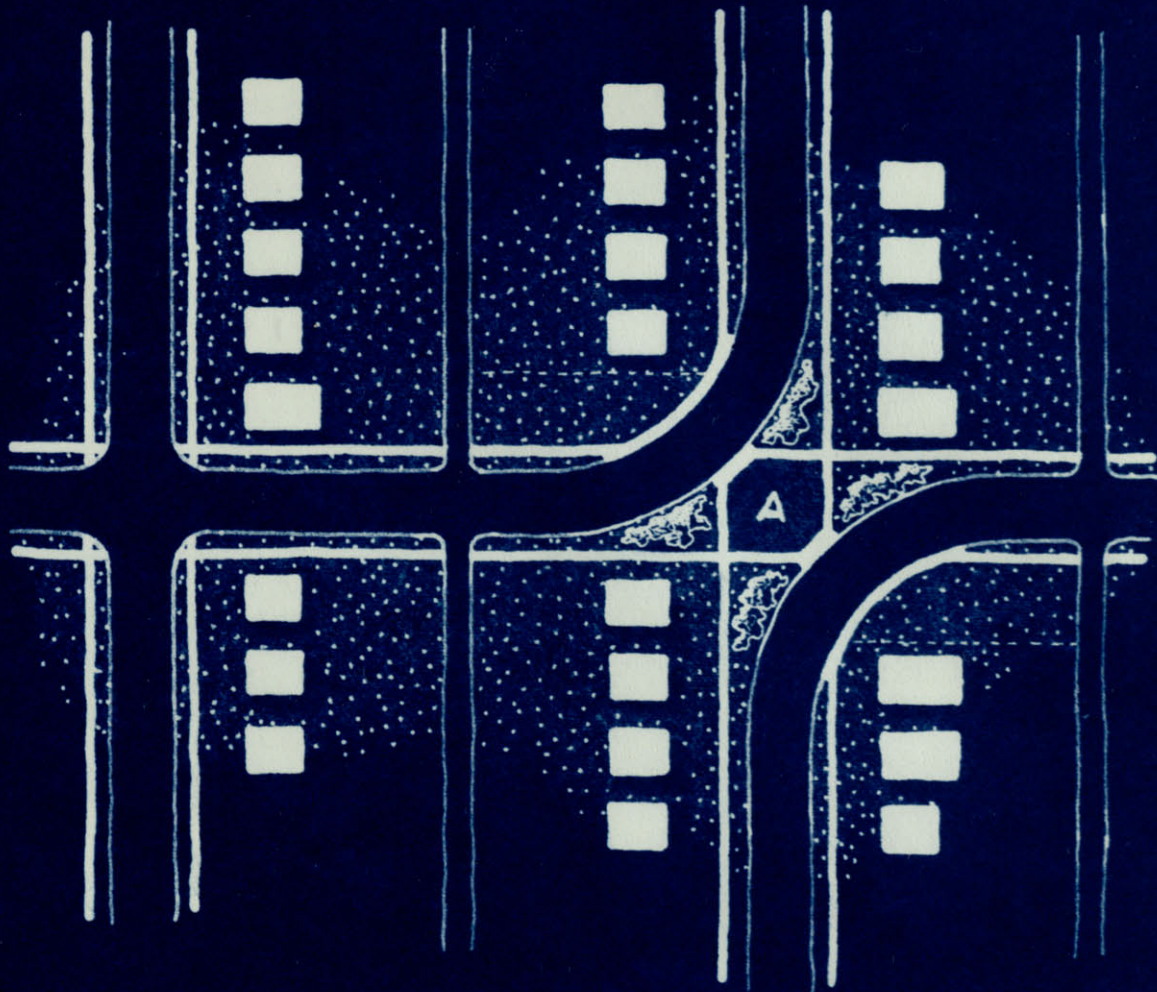




**FIGURE 31**

TWO LOOPS MEET AT ONE EX-INTERSECTION





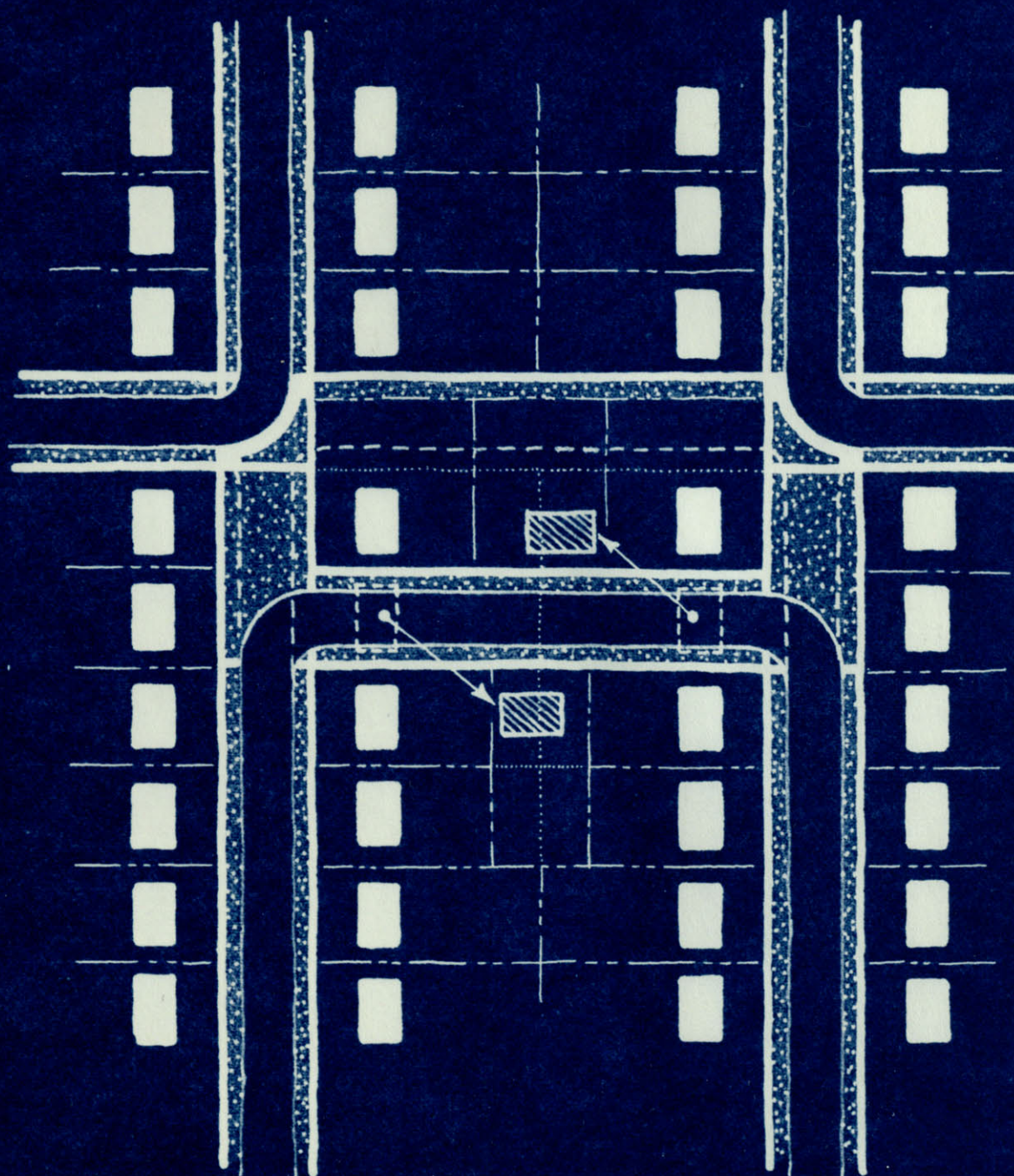
SPACE "A" CAN BE A TOT LOT.

THE 2 VACATED CORNER LOTS CAN BE  
ANNEXED TO ADJACENT PROPERTIES

### FIGURE 32

TWO LOOPS MEET WITH SPACE BETWEEN THEM  
BY REMOVAL OF LOTS





..... OLD LOT LINE



MOVED HOUSE

**FIGURE 33**

OPPOSING LOOPS



aged areas. The cost of moving post-war small houses should be relatively low (see Chapter Two, section 2-B).

#### B. Culs-de-sac

The major problem in converting an existing through street into a cul-de-sac is the provision of a convenient method for cars to turn around at the end; the usual 60 foot right-of-way was not designed to include this function.

Figure 34 - Cul-de-sac with turn-around.

Figure 35 - Cul-de-sac with back-around area.

Figure 36 - Cul-de-sac with "T" shaped back-around, using garage driveways.

These designs can be used for either long or short culs-de-sac. The following limitations should be observed where possible.

a. No dwelling should be more than 150 feet from its nearest parking space.

b. Turning radius at end of a cul-de-sac - 40 foot minimum.

c. Maximum cul-de-sac length, preferably 400 feet.<sup>1</sup>

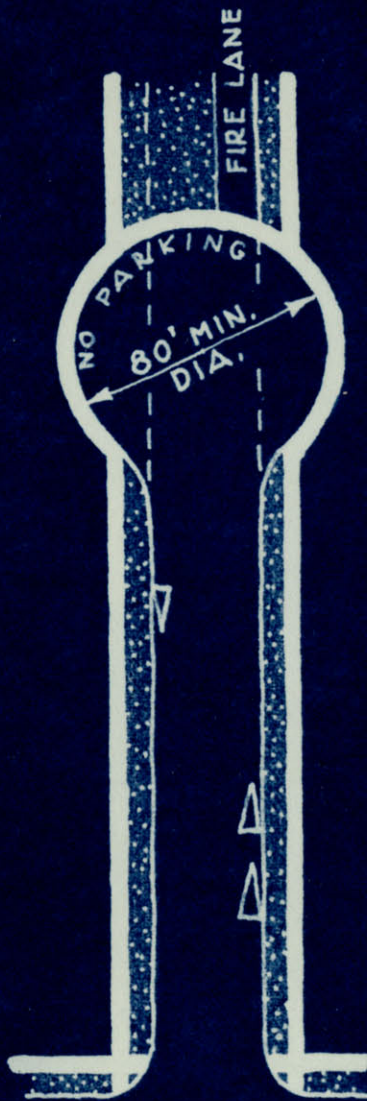
Figure 37 - Block-long cul-de-sac.

This design uses a previous intersection for a back-around and parking-bay area. In this way it solves the problem of too narrow a right-of-way for suitable turn-arounds. No new paving is required. This design preferably should only be used in short blocks.

Figure 38 - Two short culs-de-sac and block park made from a one block length of street (without garage driveways).

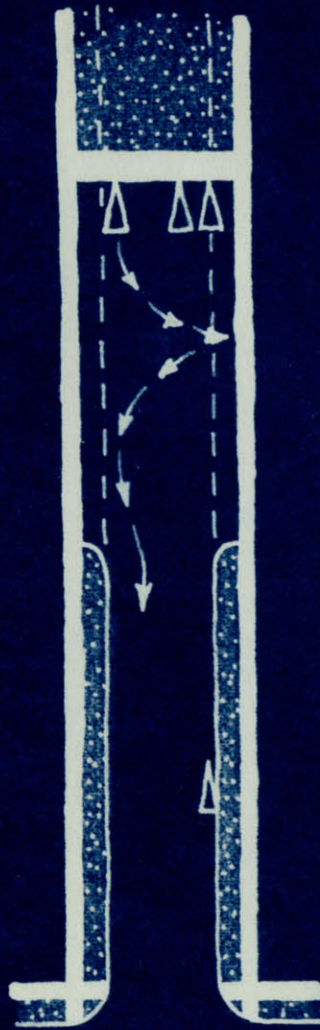
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<sup>1</sup>Lynch, K., op. cit., p. 4.



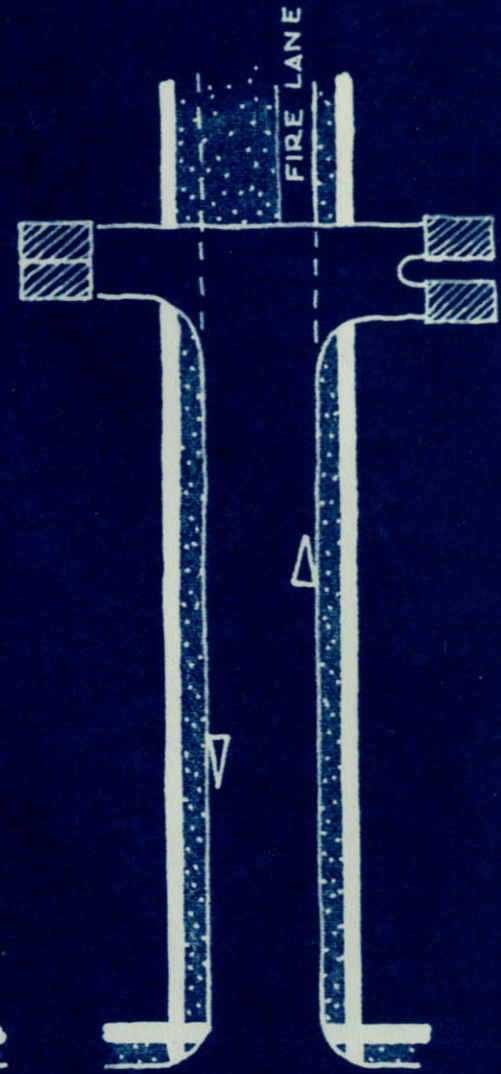
**FIGURE 34**

CUL-DE-SAC  
WITH TURN-AROUND



**FIGURE 35**

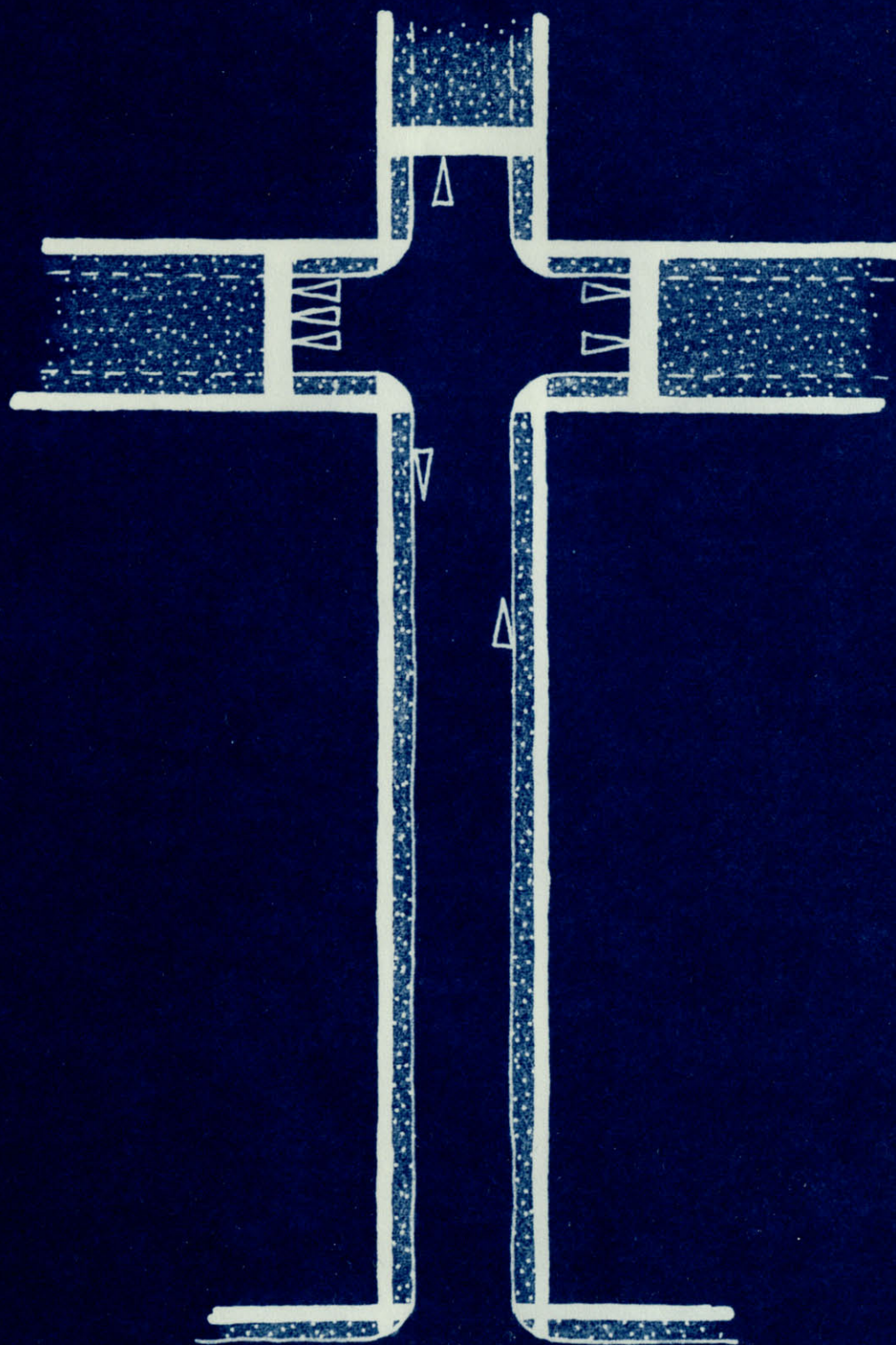
CUL-DE-SAC  
WITH BACK-AROUND  
AREA



**FIGURE 36**

CUL-DE-SAC  
WITH "T" SHAPED  
BACK-AROUND  
USING GARAGE  
DRIVEWAYS

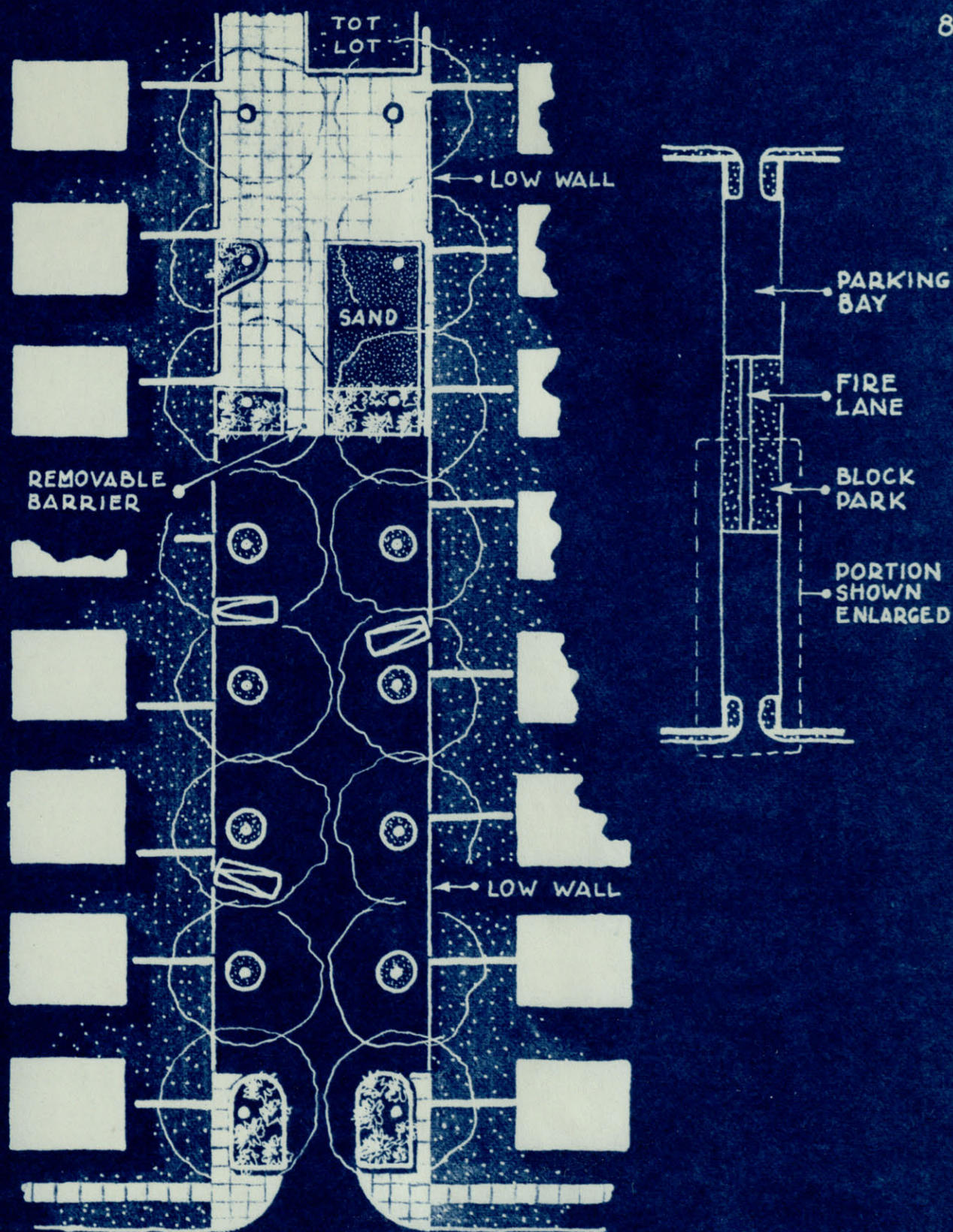




**FIGURE 37**

BLOCK-LONG CUL-DE-SAC





**FIGURE 38**

TWO SHORT CULS-DE-SAC AND BLOCK PARK MADE FROM A ONE BLOCK LENGTH OF STREET (WITHOUT GARAGE DRIVEWAYS)



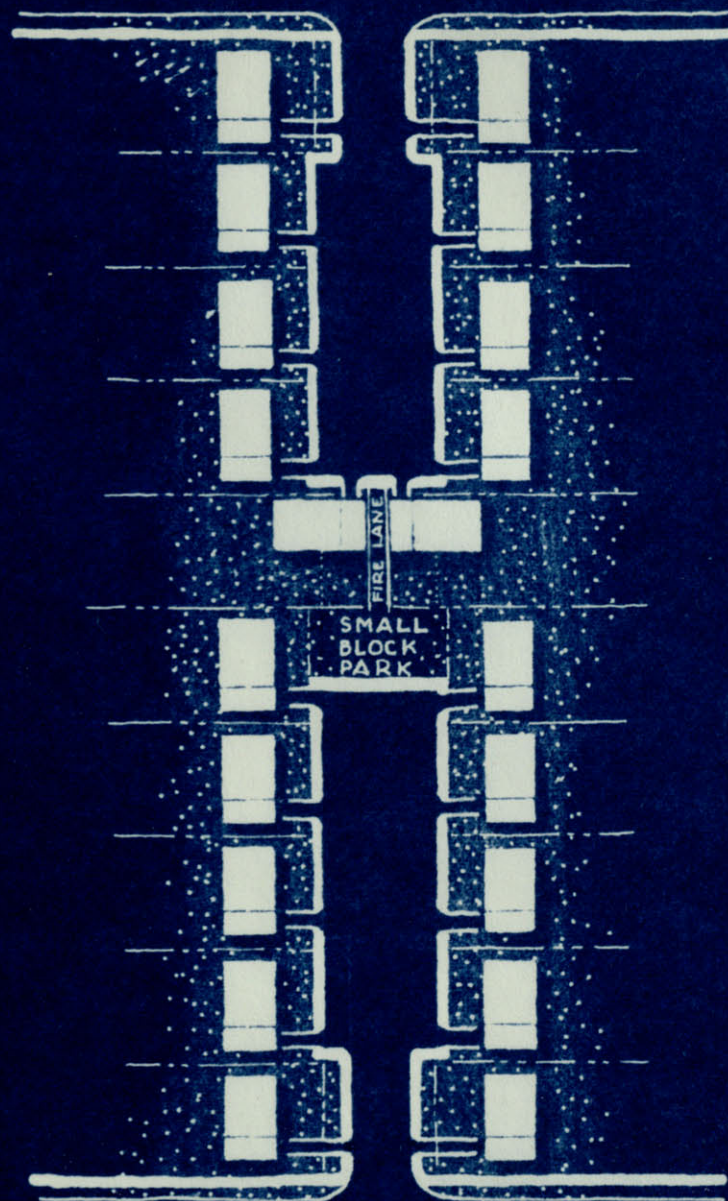
This arrangement of two culs-de-sac which are really parking bays could be made to give the appearance of a private court. It would be essentially one 60 foot wide paved area which takes the form of a block park in the center. Any number of interesting variations of detail could be made on this theme. There is some mixing of pedestrians and vehicles in the parking bays, but this does not appear to be objectionable since these parking bays would only be about 200 feet long (more or less), and vehicles would move only slowly, and parking would be light. These parking bays will no doubt be used as play areas anyway, much as the short culs-de-sac at Radburn, New Jersey, are in actuality being used. However, if walks are desired they could be provided by acquisition of about 7 feet of easement on each side of the parking bay. (A full 60 foot width is needed for 90 degree parking.)

A lane should be left through the paved block-park which connects the two parking bays if the city fire department or street maintenance department wishes. They may want to be able to run fire trucks or snow plows through. A simple barrier could be used to prevent cars from being driven through.

The cost of construction of such a cul-de-sac-block-park would vary greatly depending on both the type and quality of pavement that previously existed in the street, and on the quality of construction and the number and type of facilities desired by the residents. Often a new pavement would be most attractive and worthwhile, but in some cases of previously existing high quality pavement in good condition a mere addition of flanking paved surfaces would be satisfactory.

Figure 39 - Two short culs-de-sac and block park made from a one block length of street (with garage driveways)

This design is similar to that in Figure 38 except that driveways must be accommodated and therefore in most cases the parking bays must be extended to come closer to each other at the expense of



60' RIGHT-OF-WAY WIDENED  
TO APPROXIMATELY 75' AT  
PARKING BAYS FOR WALKS.  
THE BAY ITSELF MUST BE 60'  
WIDE.

..... OLD LOT LINE

## FIGURE 39

TWO SHORT CULS-DE-SAC AND BLOCK PARK MADE  
FROM A ONE-BLOCK LENGTH OF STREET ( WITH GARAGE  
DRIVEWAYS )



the size of the block park. The example shown is in a post World War II subdivision.

Figure 40 - Two short culs-de-sac and block park made from a one block length of street (with garage compounds).

An alternative which would permit shorter parking bays is to rearrange some garages into small compounds. Those garages which are separated from their lots would stand in small parcels under the same ownership as the lots they serve.

### C. Rearrangements of Alley Access to Garages

Figure 41 - Close alley.

The existing alley easement should be kept because telegraph poles must remain. The area can be treated as an alley park, or property owners can extend their yards to the centerline of the alley.<sup>1</sup> In such a case, if the alley is paved the pavement would have to be removed.

Figure 42 - Widen alley.

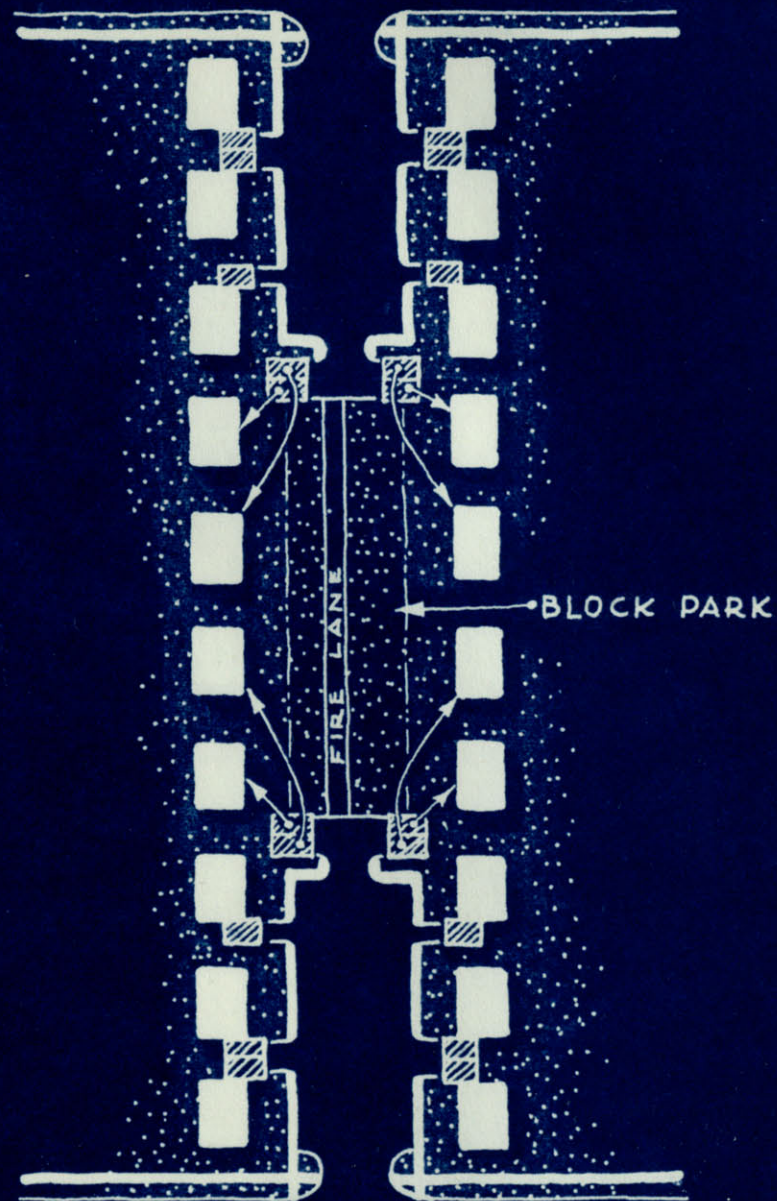
To improve existing alley access where the alleys are just too narrow for satisfactory vehicular use, they may have to be widened by moving garages on one side.

Figure 43 - Make alley into two short culs-de-sac with garage bays at the ends.


The garages for several houses are moved off their lots for placement in a compound, but the lot lines could be rearranged so each garage would still be on its own lot. Several garages must be moved or new ones built, the compound must be paved, and the block

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<sup>1</sup> Detroit Plan Commission, op. cit.



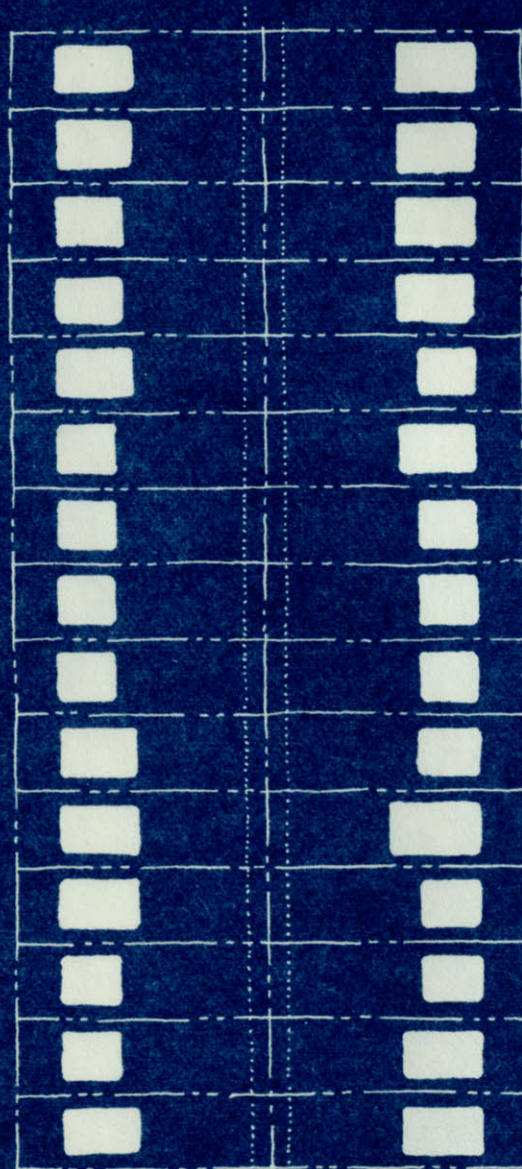
60' RIGHT-OF-WAY WIDENED TO APPROXIMATELY 75' AT PARKING BAYS FOR WALKS THE BAY ITSELF MUST BE 60' WIDE.

 GARAGES NOT ORIGINALLY PROVIDED WITH HOUSES

## FIGURE 40

TWO SHORT CULS-DE-SAC AND BLOCK PARK MADE FROM A ONE BLOCK LENGTH OF STREET ( WITH GARAGE COMPOUNDS )



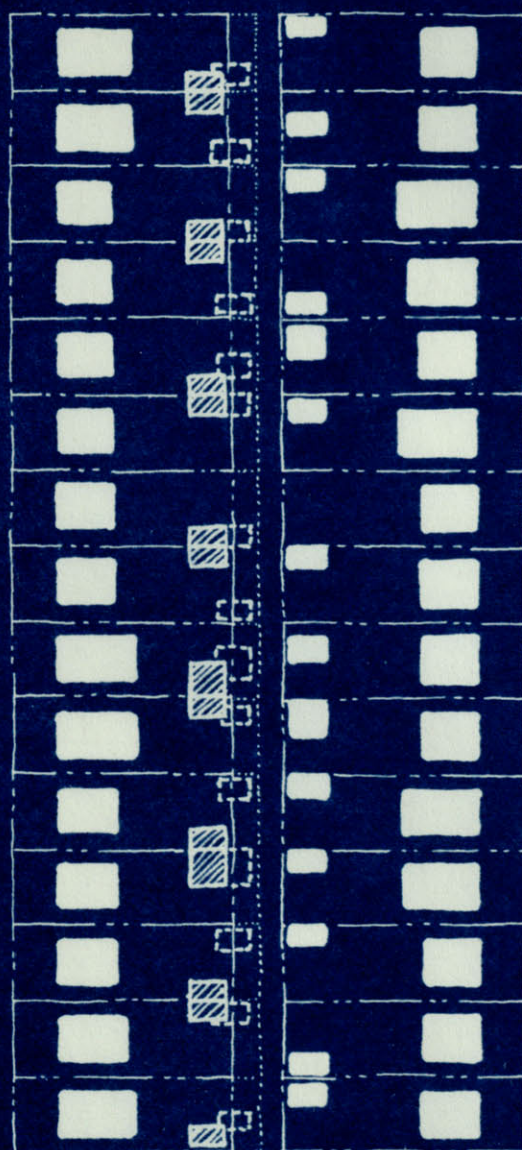


..... OLD LOT LINE

## FIGURE 41

CLOSE ALLEY





..... OLD LOT LINE

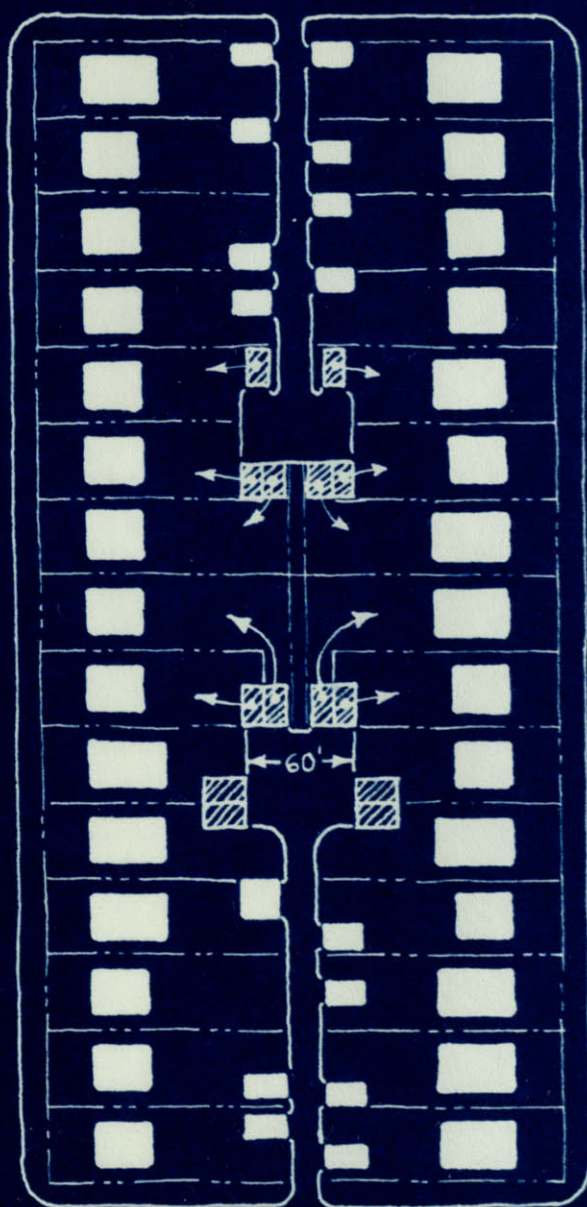
□ GARAGE, OLD LOCATION

▨ GARAGE, NEW LOCATION

**FIGURE 42**

WIDEN ALLEY





**FIGURE 43**

MAKE ALLEY INTO TWO SHORT CULS-DE-SAC WITH  
GARAGE BAYS AT THE ENDS



park (if built) must be equipped. Telegraph poles may in some cases have to be moved, but usually it is possible to "design around them".

#### D. Access When Front Street is Closed

Figure 44 - Complete house access from rear, near end of block.

This is similar to figure 43 except that a somewhat larger bay is provided to include guest parking space. Suitable sidewalks must also be added and the original alley must usually be widened. The parking area takes most of the backyard space of several lots. Some reorientation of the floor plans of the affected houses is desirable (see section 4).

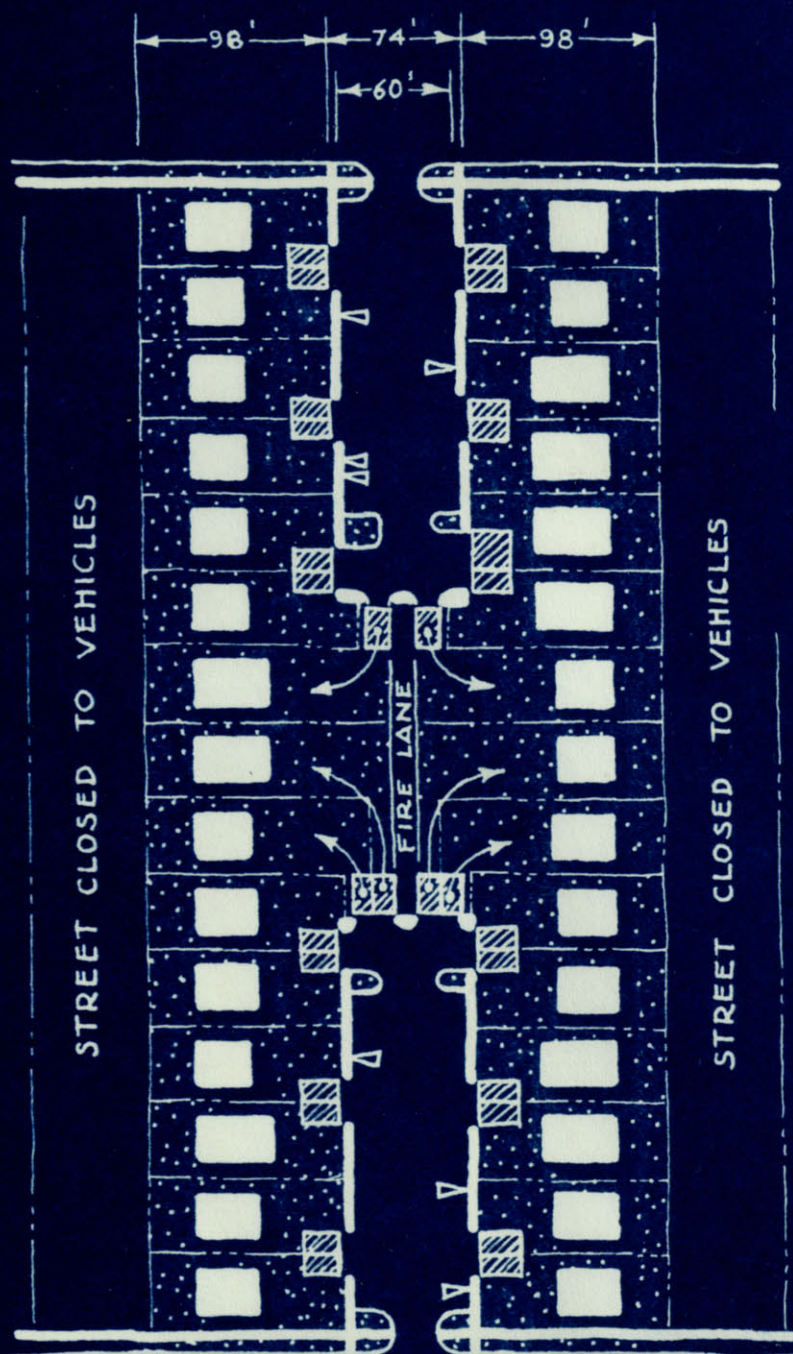
Figure 45 - Complete house access from the rear via new cul-de-sac in center of block.

This idea involves the forming of a new "T" end cul-de-sac by the acquisition of one house lot. It is used to give access to several houses that front on a closed street. Some reorientation of the floor plans of these houses is desirable (see section 4). The major cost is that of paving a new section of street and the additional sidewalks required.

Figure 46 - House access from new cross streets perpendicular to streets on which houses front.

There may sometimes be a special combination of factors which would make this arrangement advantageous:

- a. Topography (existing streets on a steep hill)
- b. Variation in street pattern, can be used to break continuity of through streets
- c. Esthetics
  - 1. Intimate groupings of houses are result.



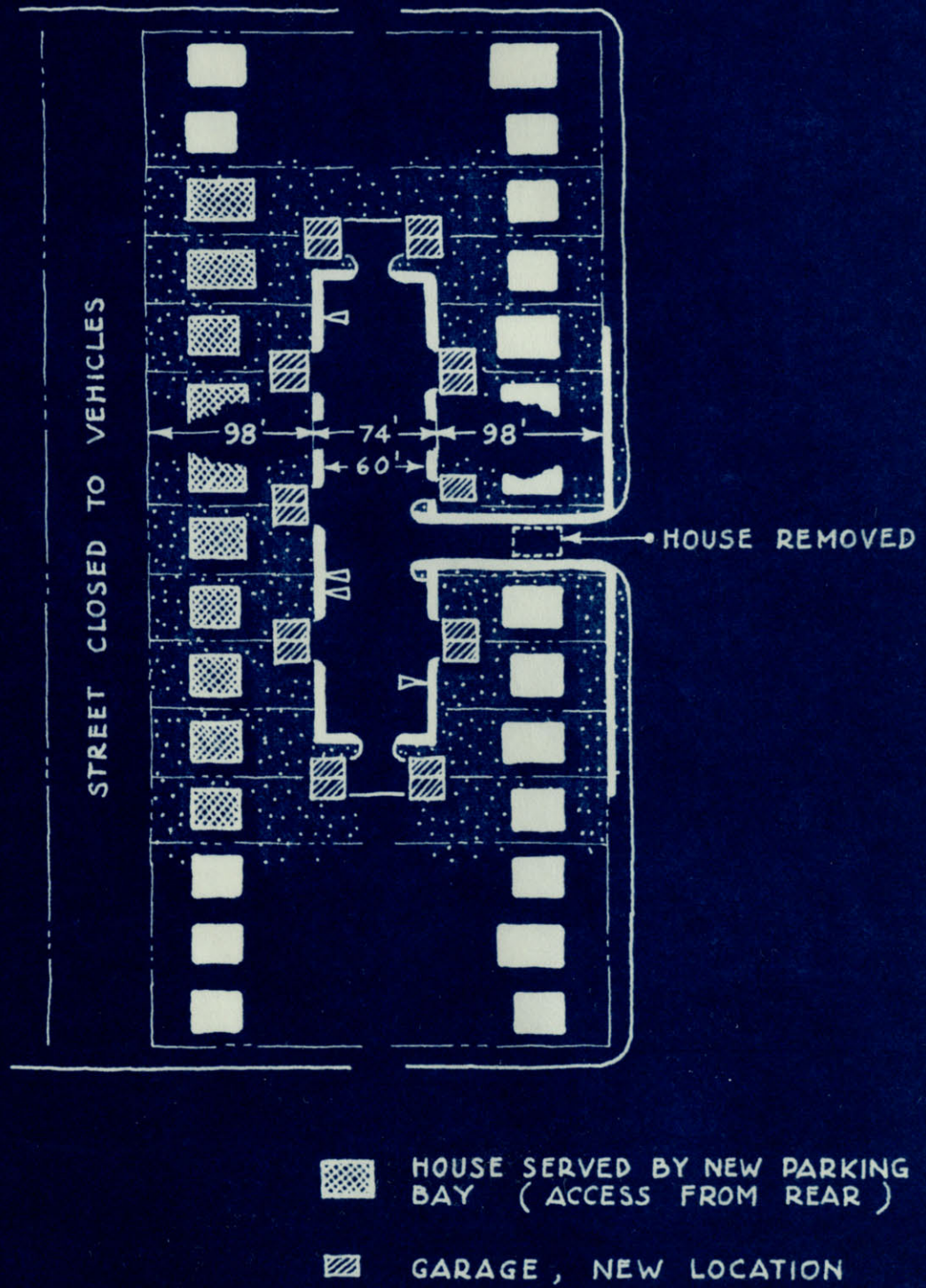
ALL GARAGES MUST  
BE RELOCATED

ALL HOUSES HAVE  
ACCESS FROM REAR

**FIGURE 44**

COMPLETE HOUSE ACCESS FROM REAR, NEAR END  
OF BLOCK

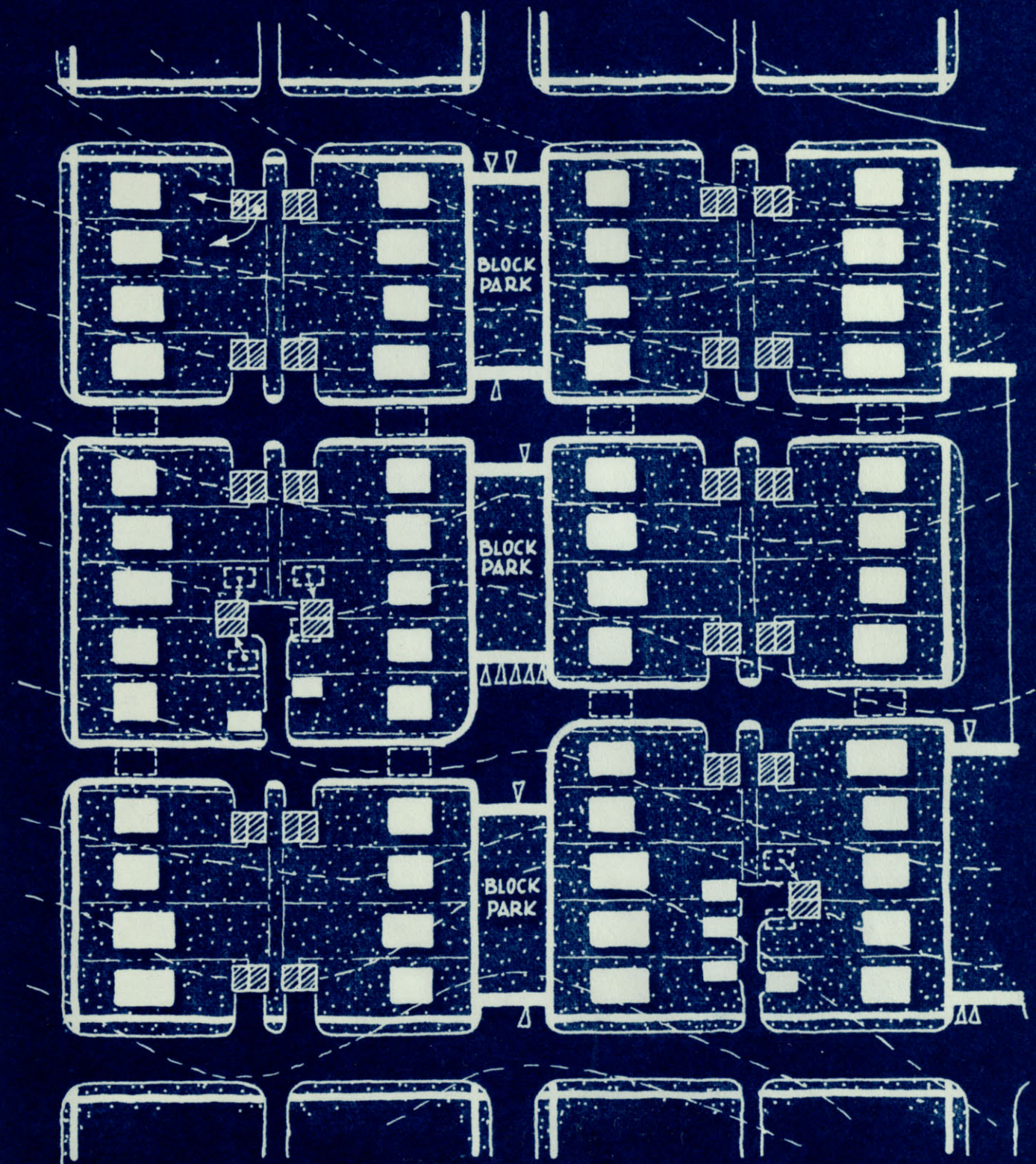




**FIGURE 45**

COMPLETE HOUSE ACCESS FROM REAR VIA NEW CUL-DE-SAC IN CENTER OF BLOCK





[Dashed Box] STRUCTURE REMOVED  
 [Hatched Box] GARAGE, NEW LOCATION

**FIGURE 46**

HOUSE ACCESS FROM NEW CROSS STREETS PERPENDICULAR TO STREETS ON WHICH HOUSES FRONT



2. Possibilities in treatment of the vacated streets

3. This is a distinctive variation from the monotonous normal pattern

4. It is one of numerous methods to block off through streets.

Some of the houses which must be removed for the new rights-of-way may be dilapidated and blighting influences and thus ease acquisition costs (this type of factor should be considered in any decision to try this idea). Considerable new pavement is required for the new streets. Vacated streets can be developed as residents see fit although their utility easement function must be retained.

#### E. Change Garage Access From Alley to Front Street

Figure 47 - Long driveway for pair of garages.

By combining access to two garages into one driveway, some space can be saved. However, this is generally a rather unfortunate arrangement, because the long driveway and back-around space, which should be provided, use up much yard space.

Figure 48 - Move garages toward front of lot.

When this can be done it allows a shorter driveway and cuts up much less yard space. It will often necessitate attaching the garages to the house because of generally limited side yard space. Local building and fire codes will have to be consulted on the necessary additional cost of fixing the garages to meet local fire safety code requirements which vary widely.

#### F. Change Garage Access From Front Street to Rear Alley

There are cases when houses fronting on major streets have driveways into the streets, and must be removed. This is basically the reverse of the procedures in figures 41 and 42.







#### 4. REORIENTATION OF HOUSE ENTRANCES AND YARD LAYOUTS

Some of the design ideas suggested in sections 1 and 3 require the reorientation of main access from front to rear in the case of many houses. Often this may be accomplished to the satisfaction of the residents by simply providing an appropriate walkway around the outside of the house. But aside from the need for reorientation many houses can gain increased livability and value in a general remodeling and reorganization of spaces as is pointed out quite effectively by the popular housing magazines. This may be combined with reorientation of access to kill two birds with one stone. However, although such remodeling may be well worth while both economically and in improved amenity, many families will not be able to pay the several thousand dollars which it may cost.

There are two ways by which this fitting of the features in individual lots and houses to neighborhood or block revisions, can be effectuated:

A. A rehabilitation agency, private or public, buys the property and does the desired remodeling and re-sells it.

B. By far the most likely method in the conservation area we are considering here is for the individual property owners to do the remodeling, or have it done, at their own initiative and expense. The city's planning or housing agency, and neighborhood organizations should have active programs for enlisting the cooperation of residents and would have education programs of various sorts to make the people aware of the possibilities and opportunities in such remodeling or reorientation work. Such organizations as A.C.T.I.O.N.,<sup>1</sup> which has been active in this area of education of the public, should be useful.

In the following suggested rearrangements of access the aim has been to disturb as little as possible the existing functions. However, often a more thorough remodeling job is desirable anyway, with a

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<sup>1</sup>American Council To Improve Our Neighborhoods, New York, N.Y.

complete rearrangement of rooms and perhaps additions to the house. That is the province of the architect who is redesigning the house.

Figure 49 - Several rear access arrangements for typical two-story houses of middle age.

The first floor plan of this house is believed to be basically typical of a great percentage of middle-aged two-story houses of the single-family detached type.

Figure 50 - Several rear access arrangements for a typical one or one and one half story house of middle age.

This is the floor plan of a house which is believed to be typical in its basic arrangement in many areas of the U.S.

Figure 51 - Post World War II houses and lots - several rear access arrangements.

The usual post-war house lies with its long side parallel to the width of the lot. Its lot is wider than older lots but the houses often have no more space between them because of their greater length. Due to shallow depth of the house the rearrangement of suitable entrance from the rear without a long walk along the side of the house is relatively simple.

Some considerations from the sample of 21 floor plans that was taken are:

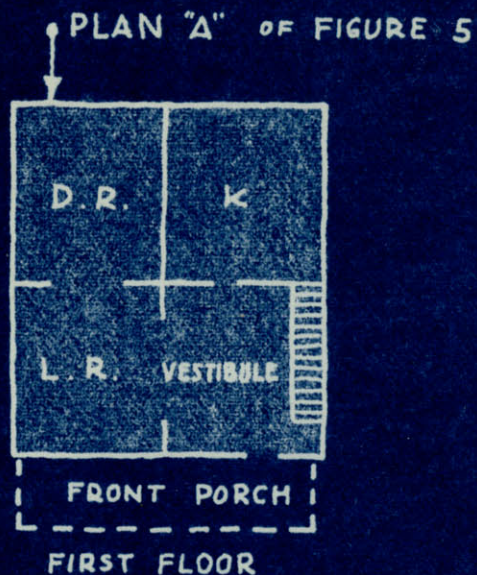
a. The 24% of the houses which have living rooms in the rear usually have rear doors suitable as front doors with no change.

b. Suitable side access to those houses with front living-room is easy to achieve cheaply and often results in a better arrangement than before.

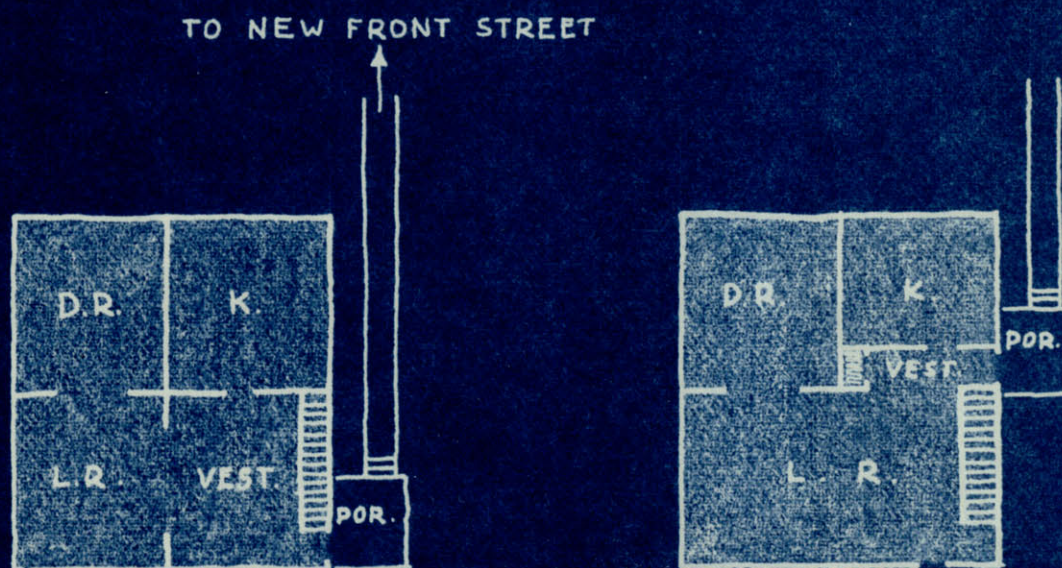
c. The 33% of the sample that have garages or carports all have them on the same side of the house as the living-room and kitchen. If the living-room is in the front and the kitchen and utility room lie across the rear, as is true in three cases, suitable access from the rear is difficult to achieve.

In most houses the change in access from front to rear should be easy and cheap.





BEFORE



TWO POSSIBLE ARRANGEMENTS

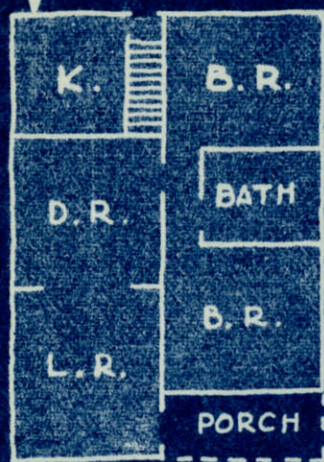
AFTER

**FIGURE 49**

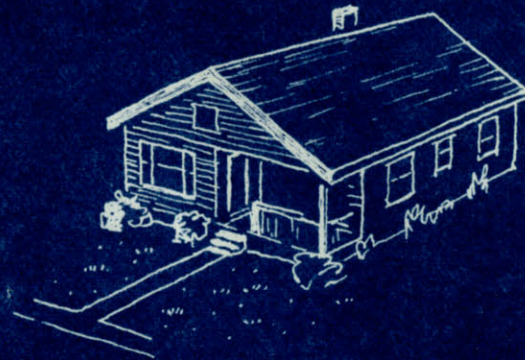
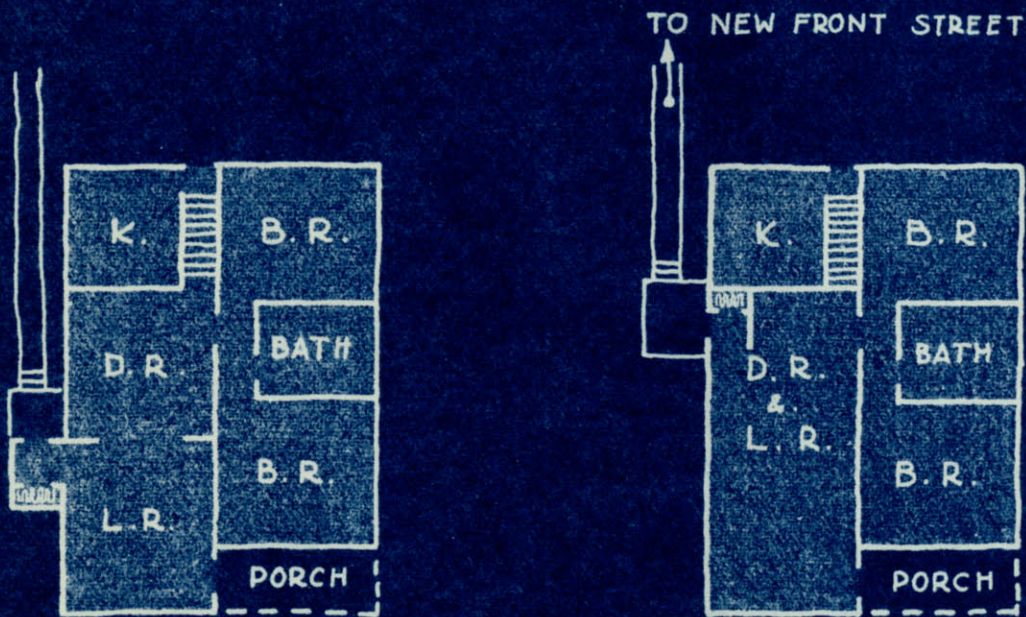
SEVERAL REAR ACCESS ARRANGEMENTS FOR TYPICAL TWO STORY HOUSES OF MIDDLE AGE



PLAN "C" OF FIGURE 5



FRONT

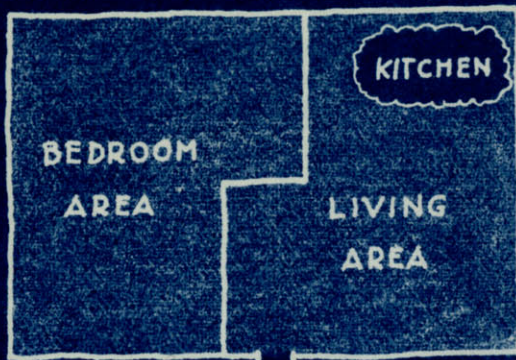
BEFORE

TWO POSSIBLE ARRANGEMENTS

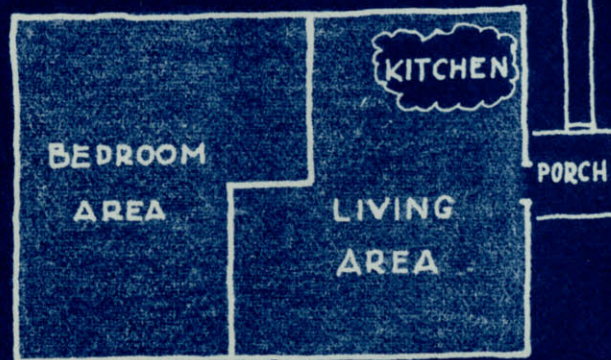
AFTER**FIGURE 50**

SEVERAL REAR ACCESS ARRANGEMENTS FOR A TYPICAL ONE OR ONE AND ONE HALF STORY HOUSE OF MIDDLE AGE

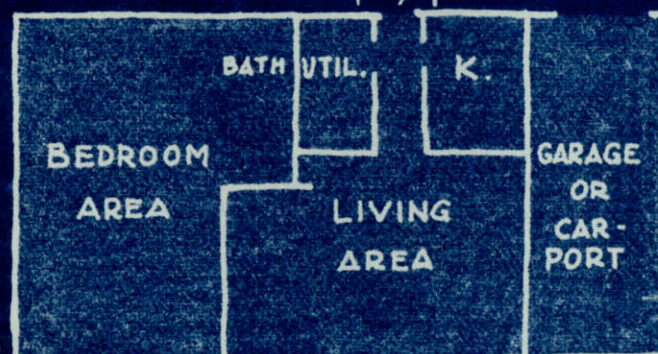




FRONT

BEFOREMOST CHANGE  
EASILY LIKE THIS

TO NEW FRONT STREET

AFTERA FEW WOULD  
CHANGE WITH  
DIFFICULTY LIKE  
THISSUITABLE ENTRANCE MUST  
BE BROKEN THRU THE  
KITCHEN-UTILITY ROOM-BATH  
BARRIER.GARAGE DOOR  
REVERSED IN  
LOCATION**FIGURE 51**POST WORLD WAR II HOUSES AND LOTS, SEVERAL  
REAR ACCESS ARRANGEMENTS

5. METHODS OF INCREASING VARIETY OF TYPES OF HOUSING  
AND SIZES OF LOTS

Figure 52 - Methods of achieving variety in middle aged areas.

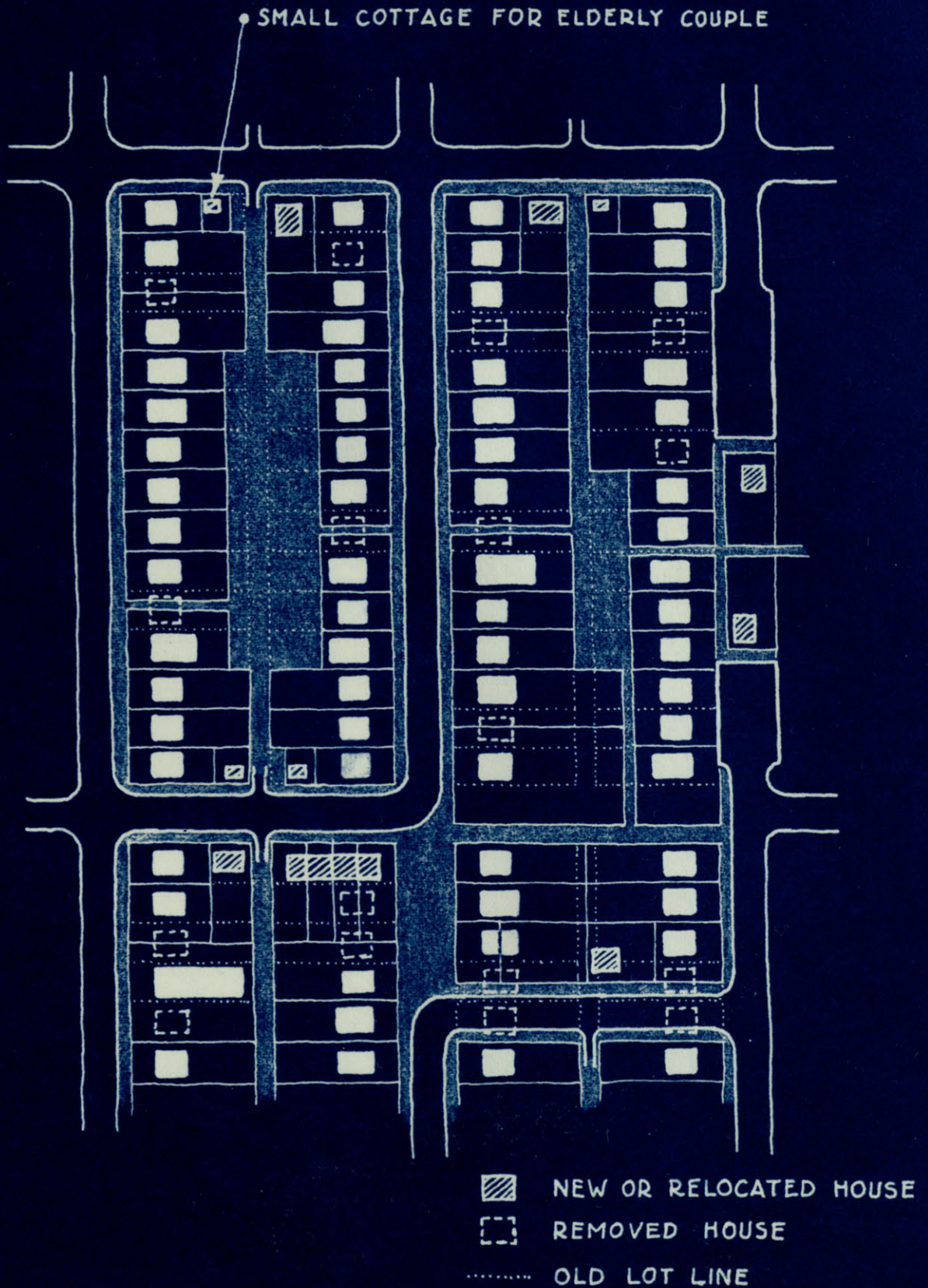
A variety of lot sizes and shapes can be provided automatically by many of the other suggested design ideas, such as by moving alternate houses in a row to new locations, taking portions of back yards for easements or parks, closing streets, etc.

Zoning ordinances and deed restrictions will frequently be barriers to these operations.

Figure 53 - Methods of achieving variety in post World War II areas.

There is usually more monotony here but it is somewhat easier to shuffle houses because of larger lots, and the houses are usually small.

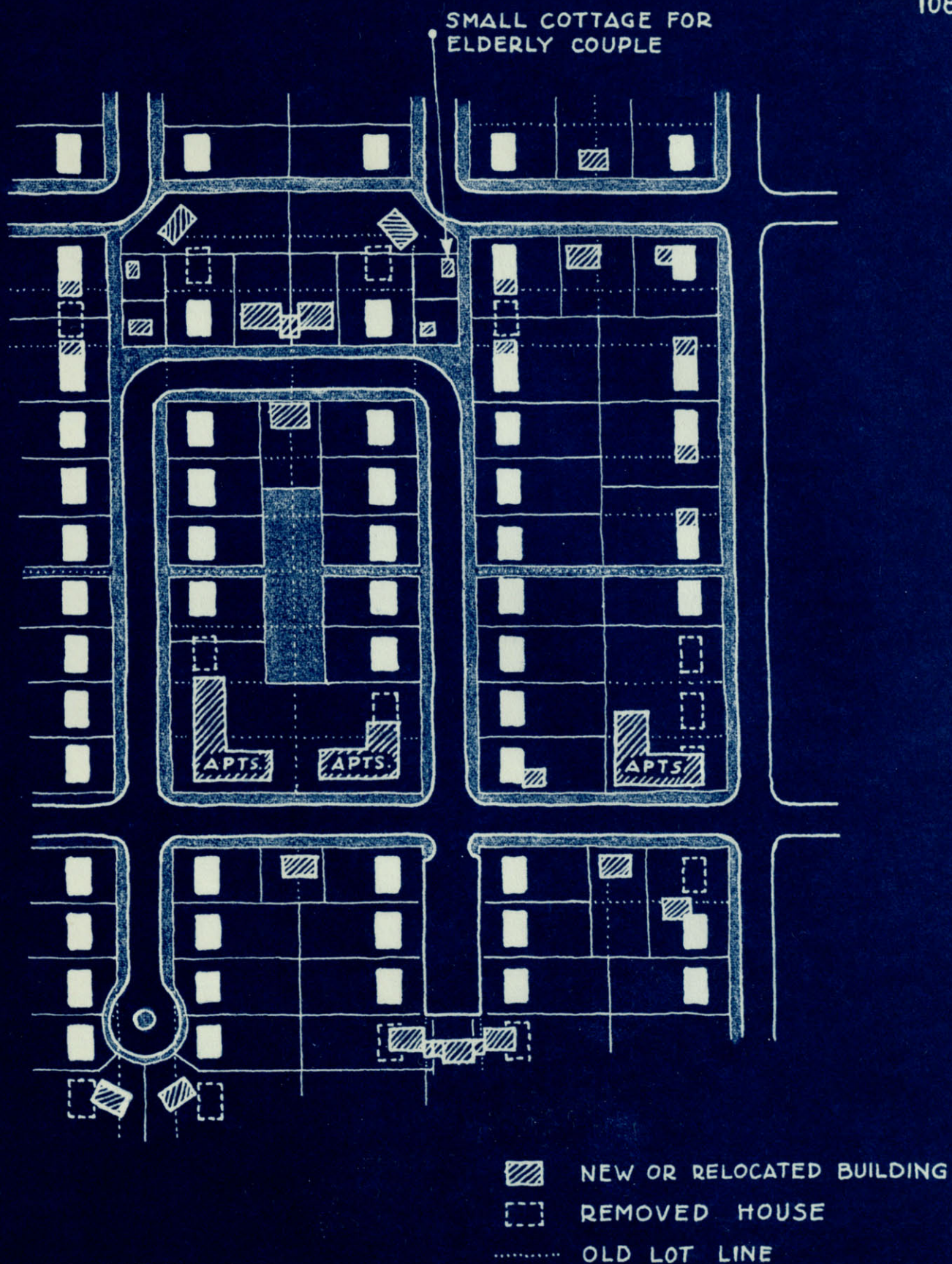




**FIGURE 52**

METHODS OF ACHIEVING VARIETY IN MIDDLE AGED AREAS





**FIGURE 53**

METHODS OF ACHIEVING VARIETY IN POST WORLD -  
WAR II AREAS



## 6. METHODS OF GAINING SPACE FOR DESIRED NEIGHBORHOOD FUNCTIONS

Land use features which are necessary to the proper function of residential neighborhoods should definitely be added where they do not exist. A frequent reason that they do not exist is that they often require considerable space which was not originally provided when the neighborhood was built. This space must be acquired. The several most likely sources of space are:

### A. Close sections of streets and alleys

There is much potential space here because 32% of a typical residential area (as described in Chapter One) is in such street and alley easements.

### B. Use existing park land for additional functions.

An example is the use of a neighborhood park of ample size for a new school site.

### C. Acquire land in undesirable use.

This can include strip developments, vacant land, industrial uses, dilapidated structures, or wrongly located good land uses.

### D. Add portions of private lots to easements.

It is often possible to widen street or alley rights-of-way into residential lots without harm to the value of the houses or to the function of yards. In fact if done properly it can have the effect of increasing both value and utility of the private property.

### E. Move structures.

### F. Acquire land which is in good use.

This is a sort of last resort and should of course be held to a minimum. It should be used only when the previous categories cannot adequately provide the needed land in suitable locations.

The following diagrams show several potentialities for acquiring park space:

Figures 53<sup>a</sup>-55 - Neighborhood park space.

These three figures show methods of trying to utilize maximum street space in order to minimize the lot area taken for a given size of park or playground.

Block Parks made from Back Yards and Alleys

Much cooperation and a desire on the part of abutting property owners is needed to effectuate these ideas:

Figure 56 - Alley easement park.

This idea is mentioned in figure 42.

Figure 57 - Widened alley easement park.

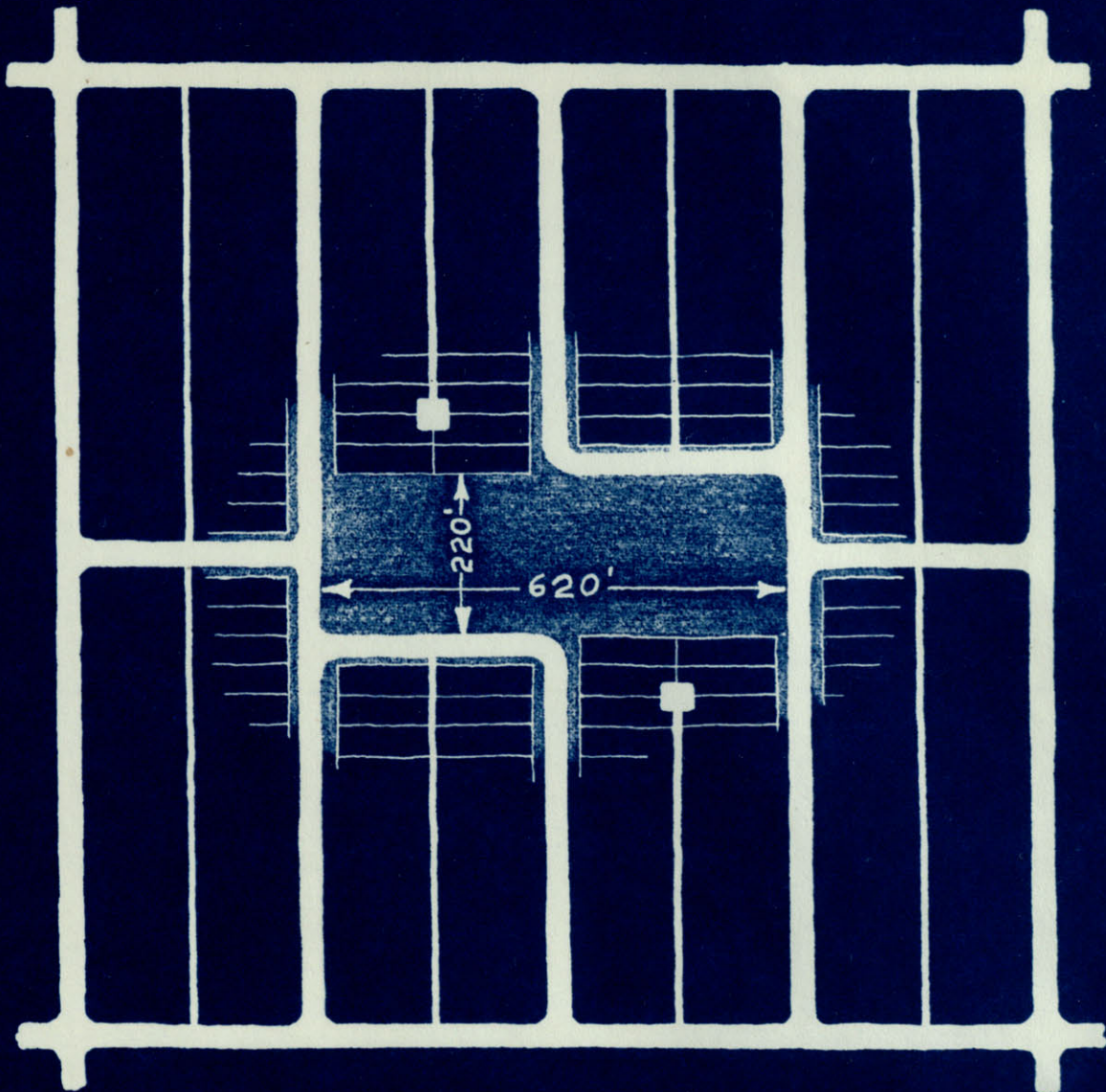
The easement in the alley may be widened for part or all of the block. Usually enough of the back yards would be kept to be useful as private outdoor living areas. Some yards or lots might be excluded from the park because:

- a. Choice of a variety of size of lots is made available.
- b. The owners in a part of a block, only, may agree to have a park. The question that arises here is - does the owner who refuses to give up part of his lot also reap the benefits of the park produced by the others who gave parts of their lots? That will have to be worked out.

Figure 58 - Park between garage compounds.

This is a use of the space between the type of garage compounds shown in figure 43.





BY TAKING 20 LOTS OR 8.35 % OF THE TOTAL 240 IN THE  
SUPERBLOCK :

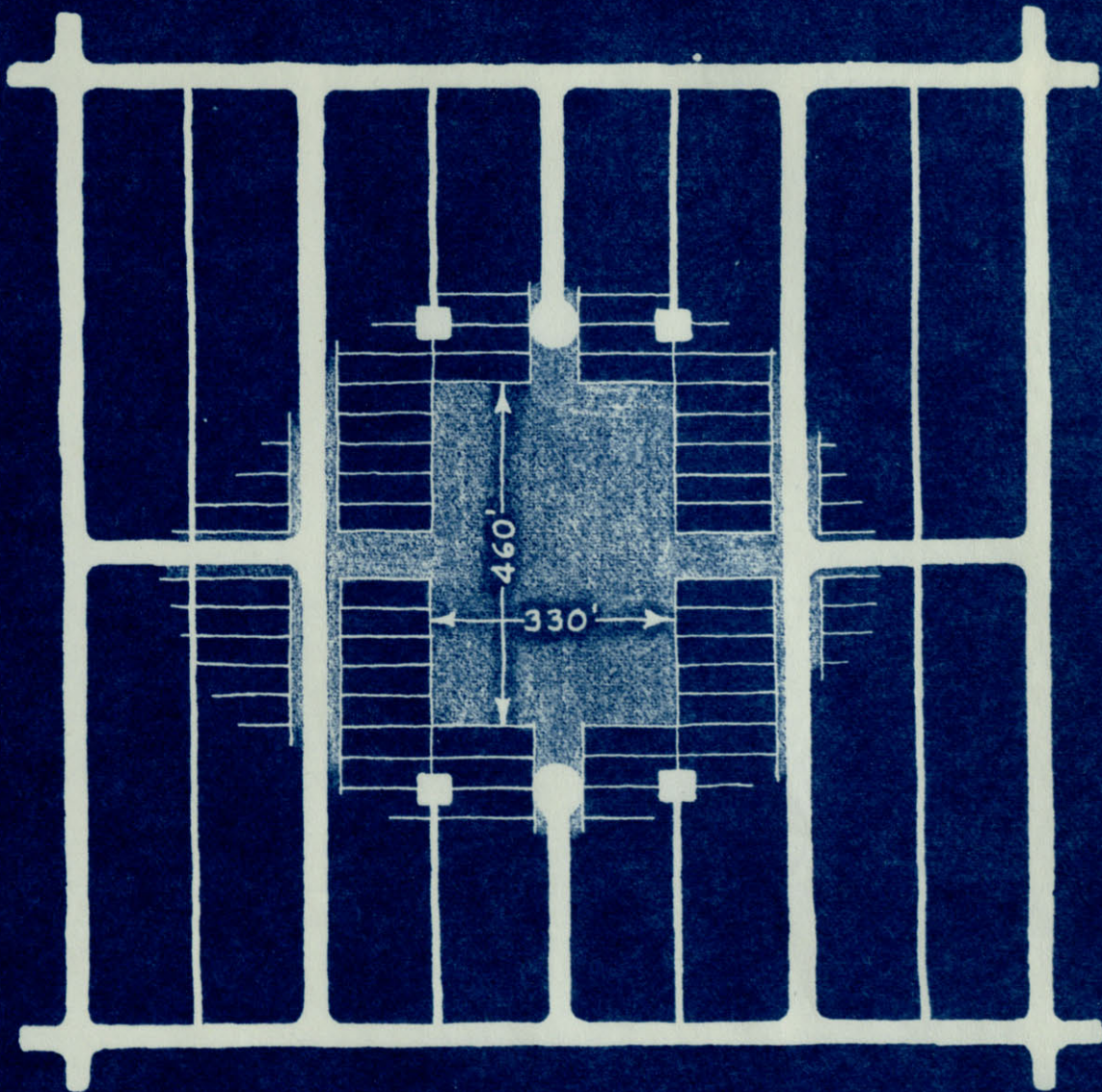
USABLE PARK AREA IS 136,400 SQ. FT.

6,820 SQ. FT. GAINED PER LOT TAKEN

### FIGURE 53 a

NEIGHBORHOOD PARK SPACE





BY TAKING 20 LOTS OR 8.35 % OF THE TOTAL 240 IN THE  
SUPERBLOCK :

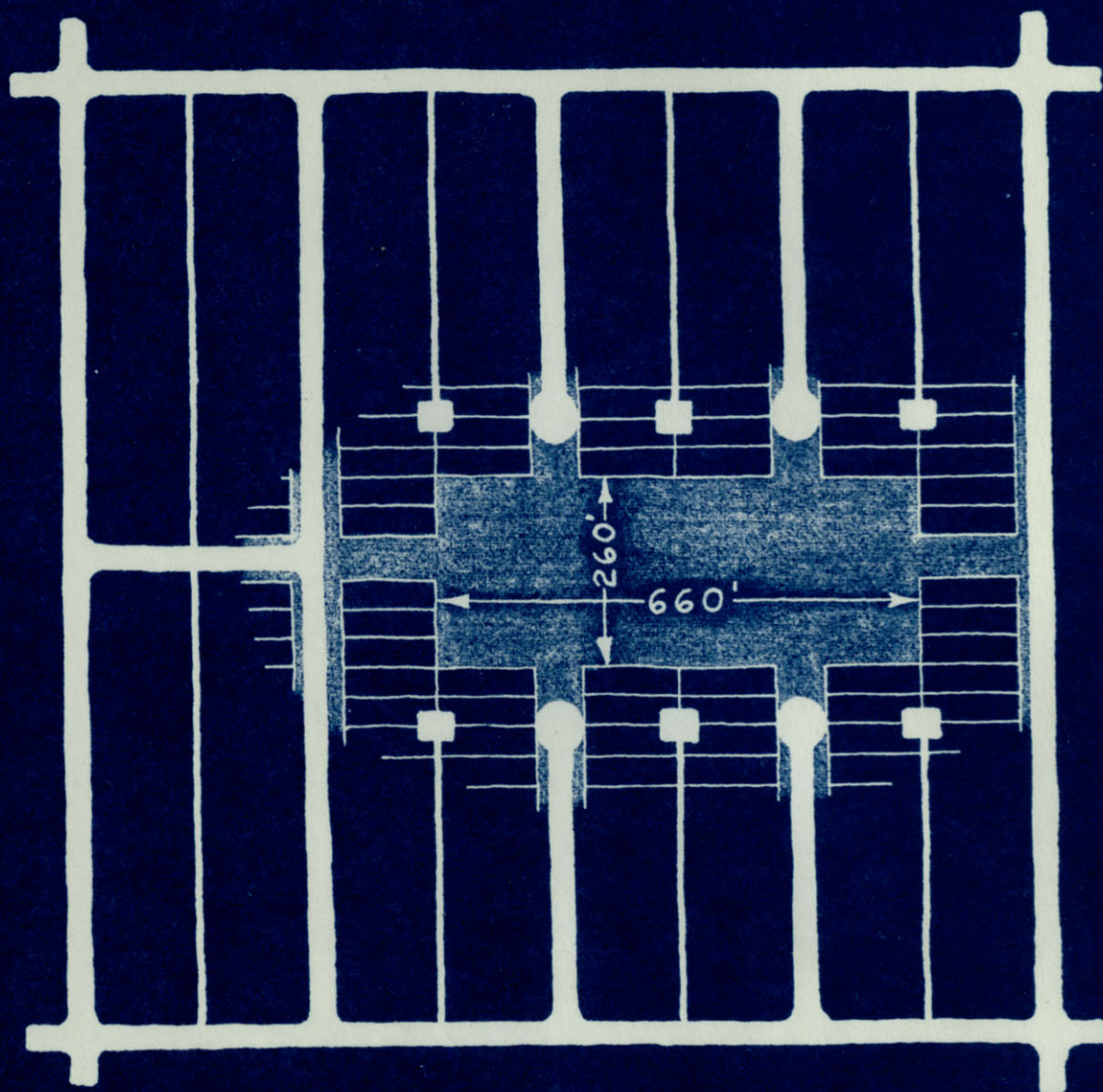
USABLE PARK AREA IS 151,800 SQ. FT.

7,600 SQ. FT. GAINED PER LOT TAKEN

## FIGURE 54

NEIGHBORHOOD PARK SPACE





BY TAKING 20 LOTS OR 8.35% OF THE TOTAL 240 IN THE  
SUPERBLOCK :

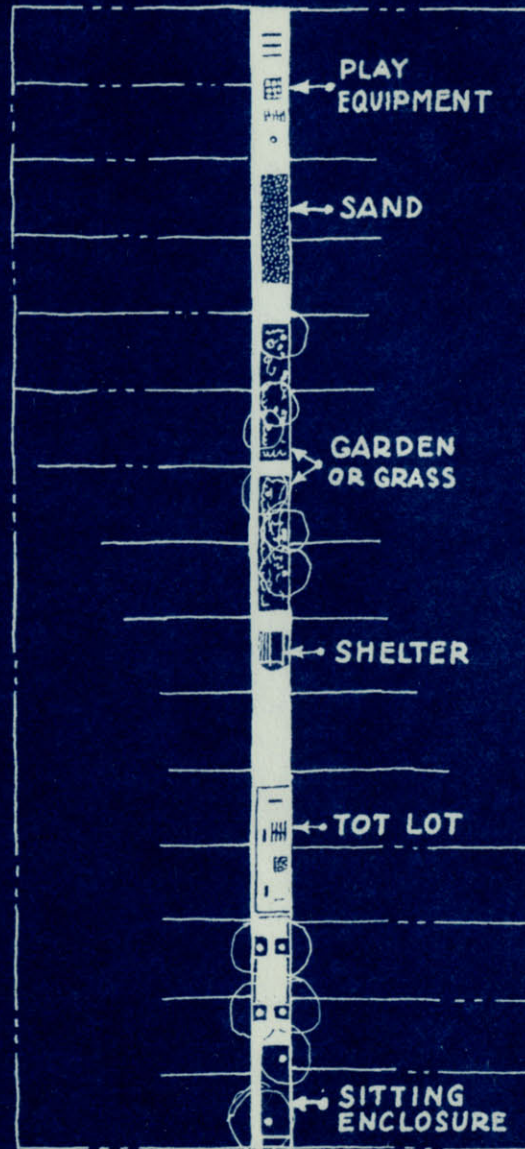
USABLE PARK AREA IS 171,200 SQ. FT.

8,550 SQ. FT. GAINED PER LOT TAKEN

## FIGURE 55

NEIGHBORHOOD PARK SPACE

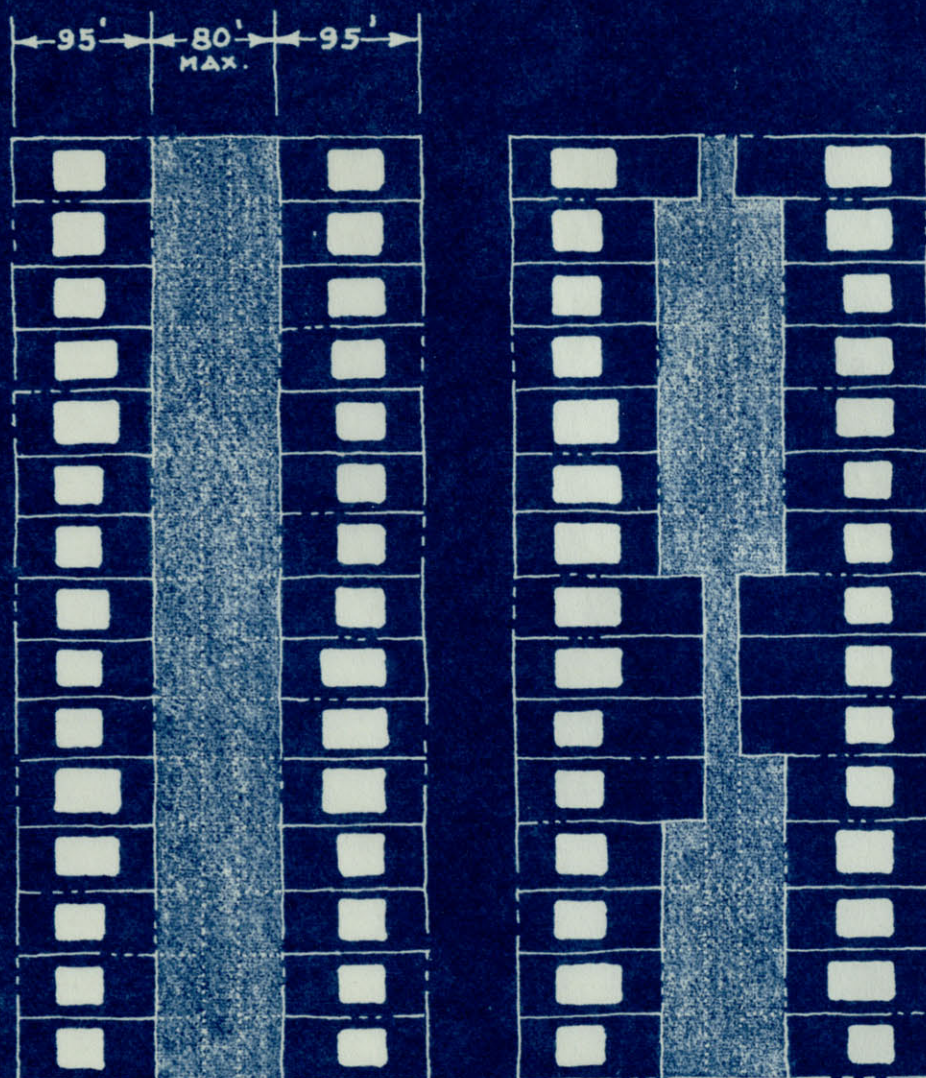




**FIGURE 56**

ALLEY EASEMENT PARK



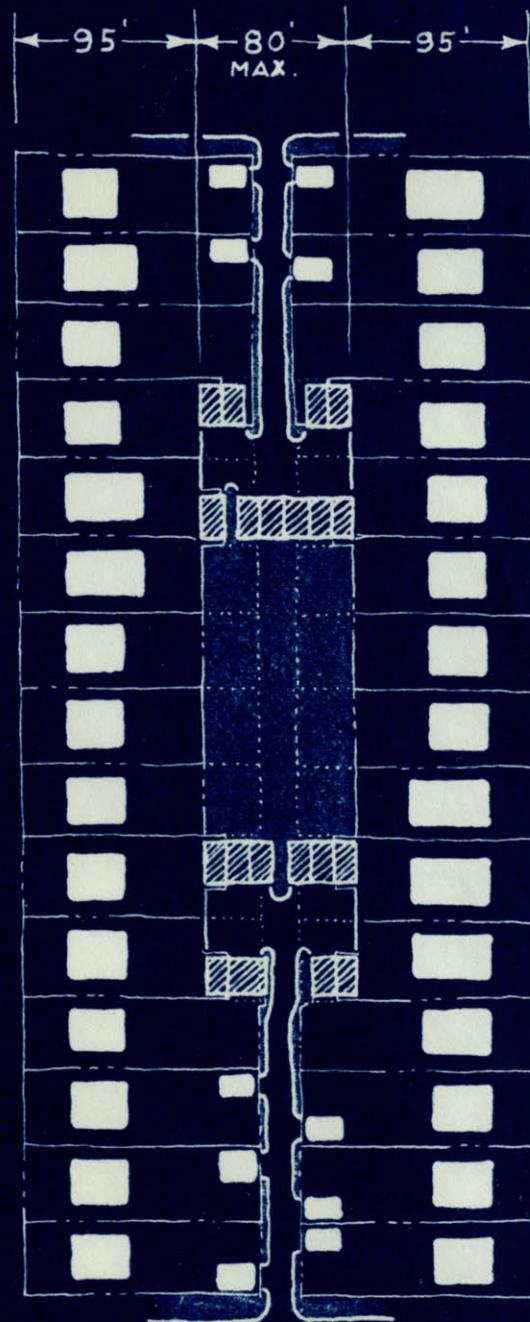


..... OLD LOT LINE

**FIGURE 57**

WIDENED ALLEY EASEMENT PARK





RELOCATED GARAGE  
OLD LOT LINE

**FIGURE 58**

PARK BETWEEN GARAGE COMPOUNDS



## 7. SUGGESTIONS FOR PROVISION OF NEIGHBORHOOD FACILITIES AND EQUIPMENT

### A. Possibilities in Using Closed Streets For Play Areas

These ideas make use of existing pavements, curbs, etc.

Figure 59 - Tot lot developed in closed street intersection.

Figure 60 - Play spaces for older children than tot lot age.

This suggests two alternate treatments for alternate types of street pavement quality, making the best use of existing pavement type at low cost.

### B. Some Walkway Ideas

Figure 61 - Kahn's "Greenway" idea.

Louis Kahn, consulting architect for the Philadelphia City Planning Commission, has developed this system of devoting a major portion of a feeder street right-of-way to an interesting and pleasant pedestrian walkway.

Figure 62 - Idea for treatment of pedestrian way along loop street end.

Figure 63 - Change unneeded connecting street into pedestrian way.

This is especially a good idea where short blocks provide more cross vehicular routes than necessary. This idea has been suggested by the Detroit Plan Commission.<sup>1</sup>

Figure 64 - Greenways parallel to blocks.

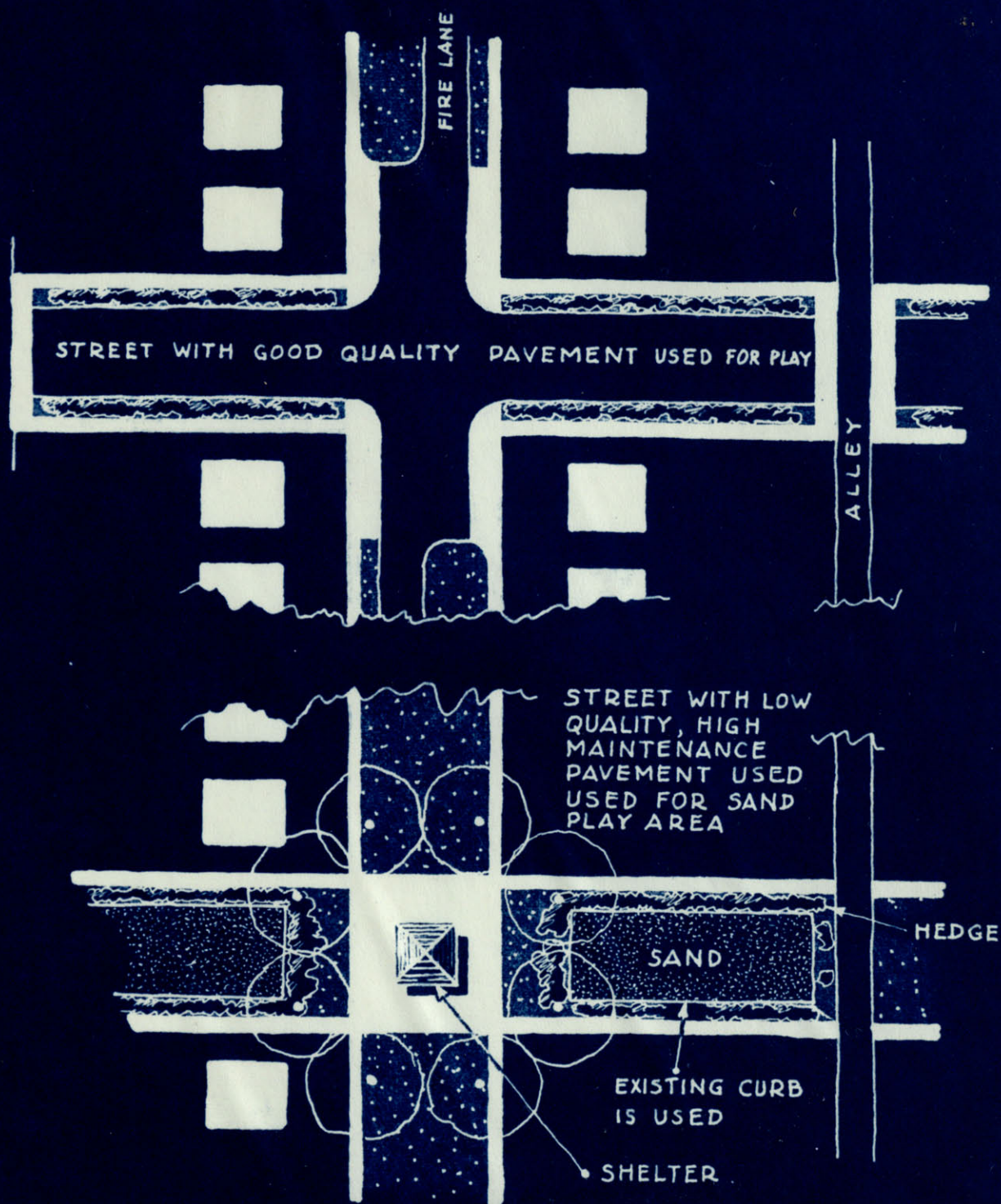
It will often be desirable to have a greenway on the pedestrian route along a minor vehicular street. A suggested treatment is shown.

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<sup>1</sup>Detroit Plan Commission, op. cit.



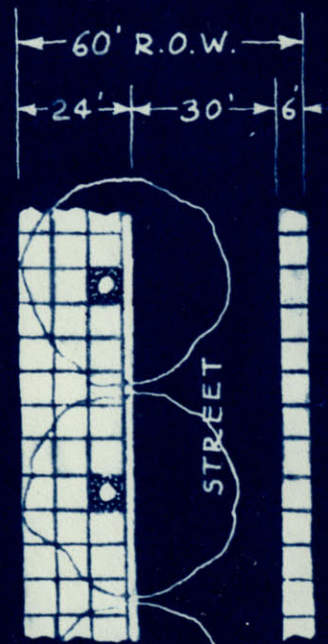
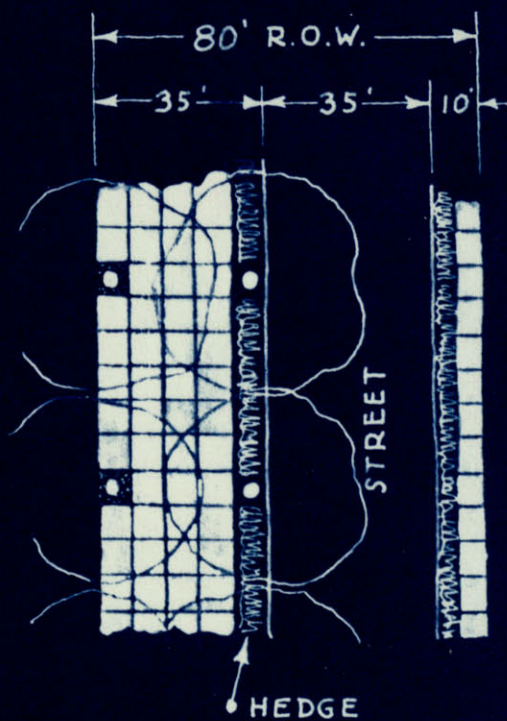
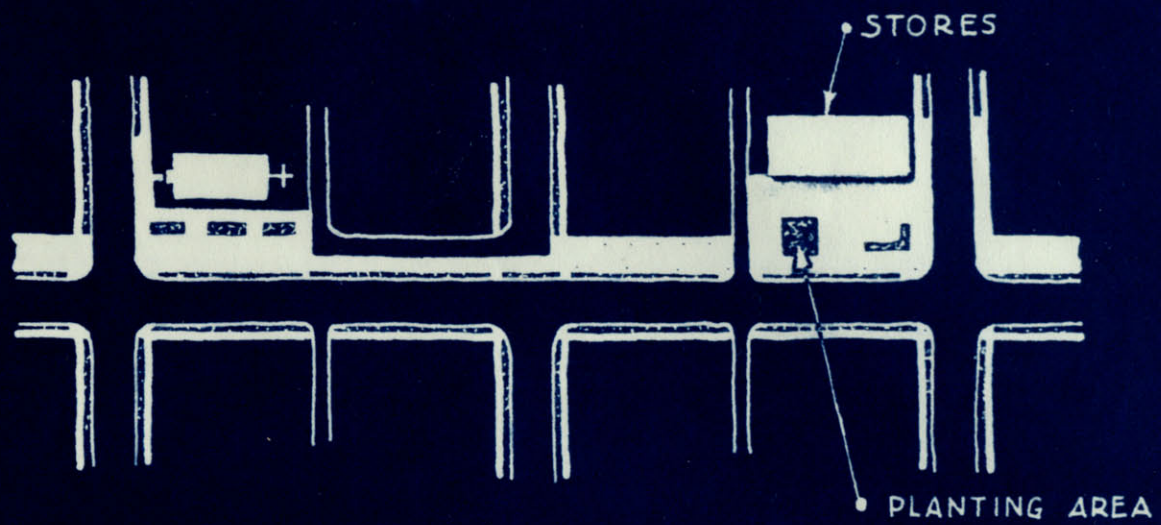




**FIGURE 60**

PLAY SPACES FOR OLDER CHILDREN THAN TOT LOT AGE

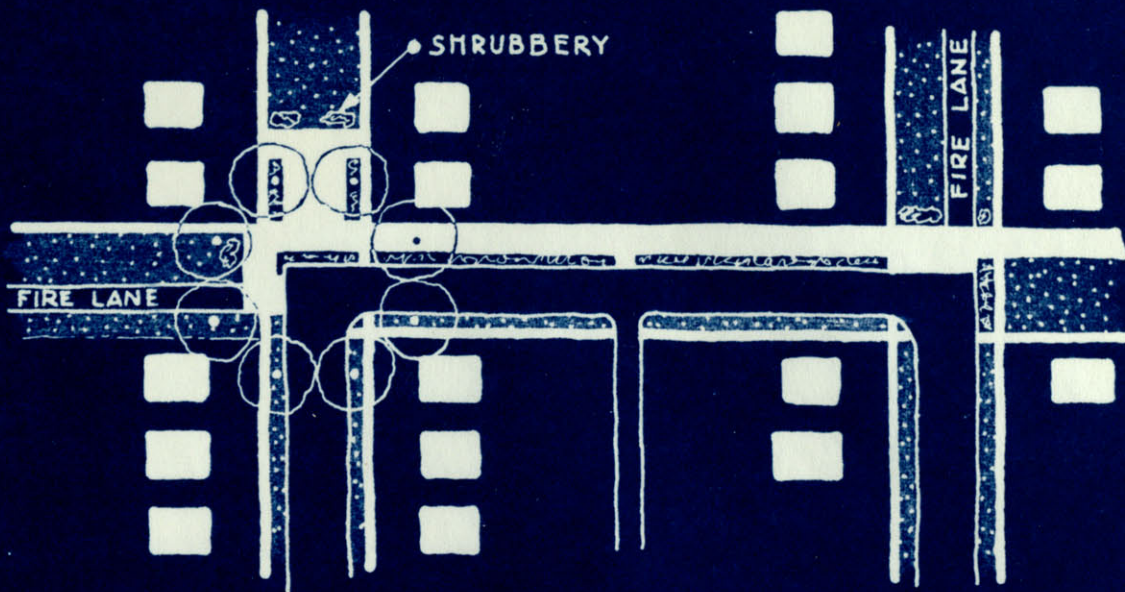




**FIGURE 61**

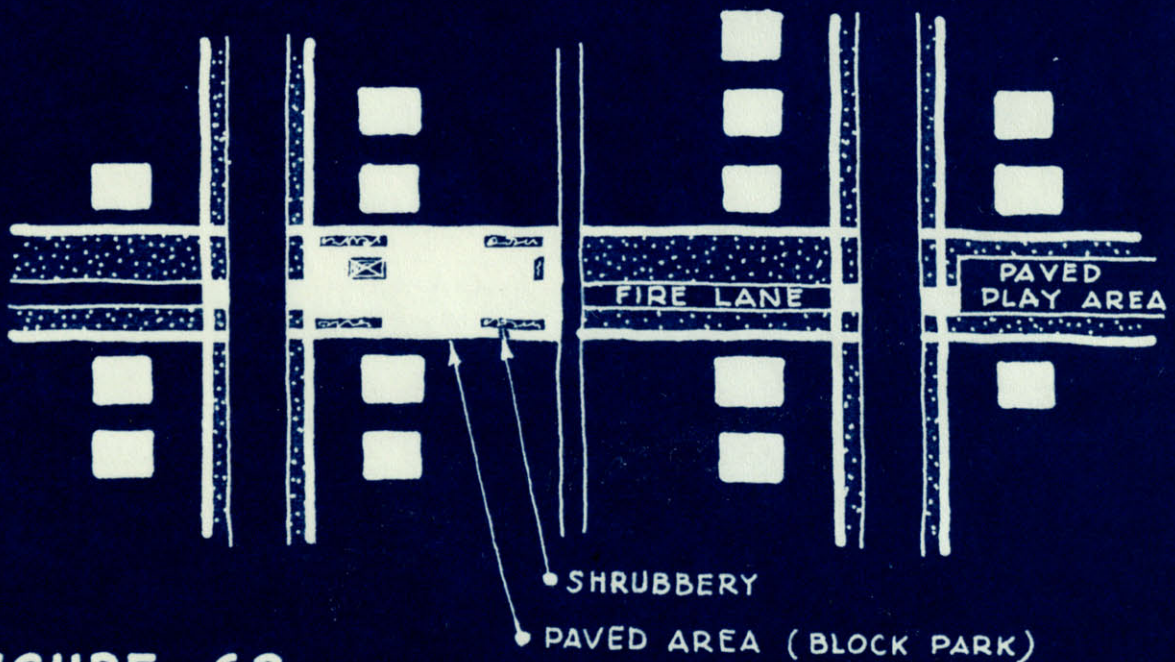
KAHN'S "GREENWAY" IDEA





**FIGURE 62**

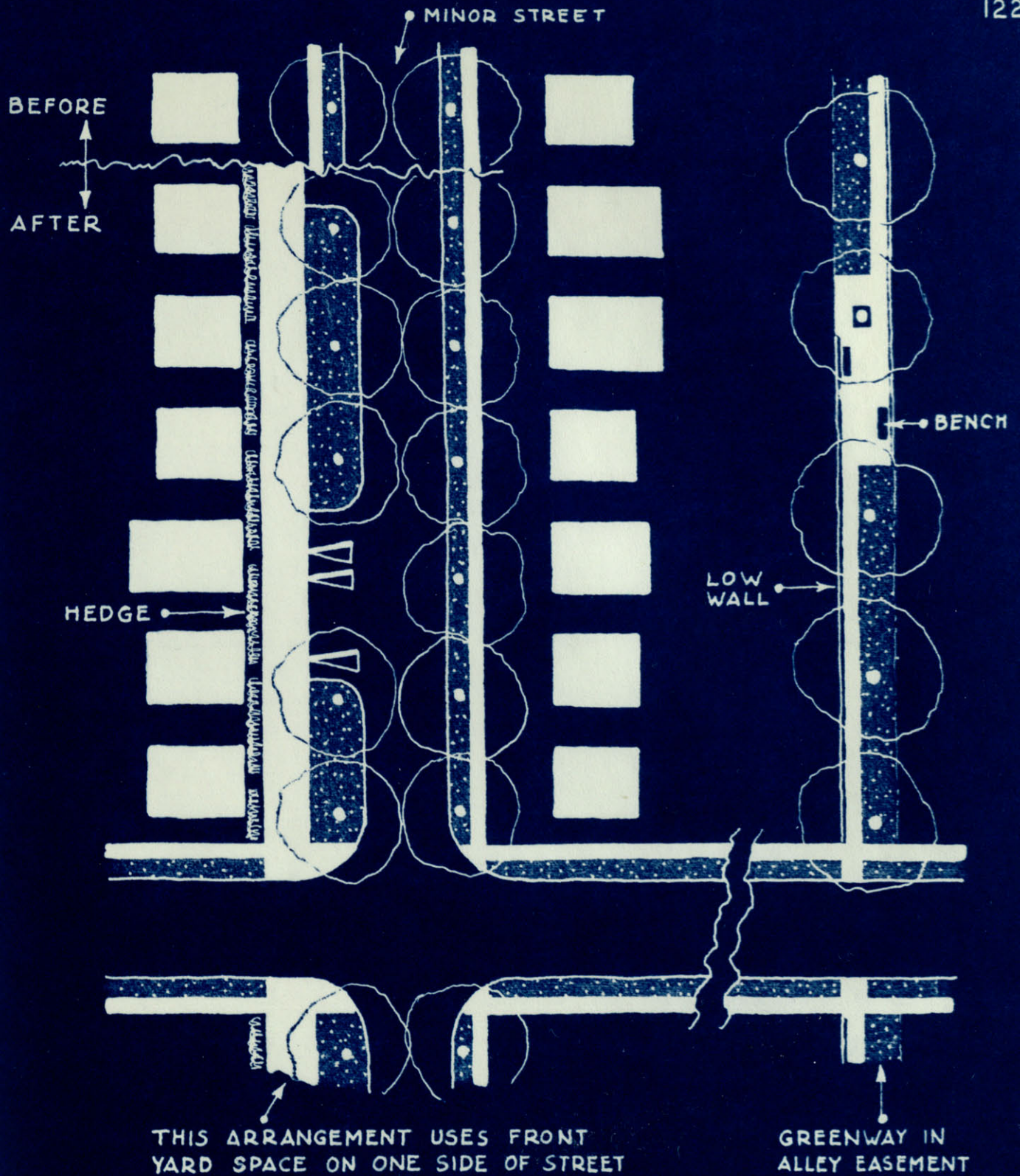
IDEA FOR TREATMENT OF PEDESTRIAN WAY ALONG  
LOOP STREET END



**FIGURE 63**

CHANGE UNNEEDED CONNECTING STREET INTO PEDESTRIAN  
WAY





**FIGURE 64**

GREENWAYS PARALLEL TO BLOCKS



Figure 65 - Walkways across block.

Additional ways can often be provided across the middle of long blocks for small cost. Sometimes a walkway can use space opened up when an undesirable structure has been removed. Since a walk only needs an easement about 7 feet wide, it can often be put between two houses that have a relatively good space between them. This mid-block way is especially valuable in blocks that are more than 1000 feet long.<sup>1</sup>

Figure 66 - Diagonal Greenway.

An occasional diagonal pedestrian route could be a welcome break in the rectangular grid. It is good for pedestrian short cuts.

Figure 67 - Bus stop shelters.

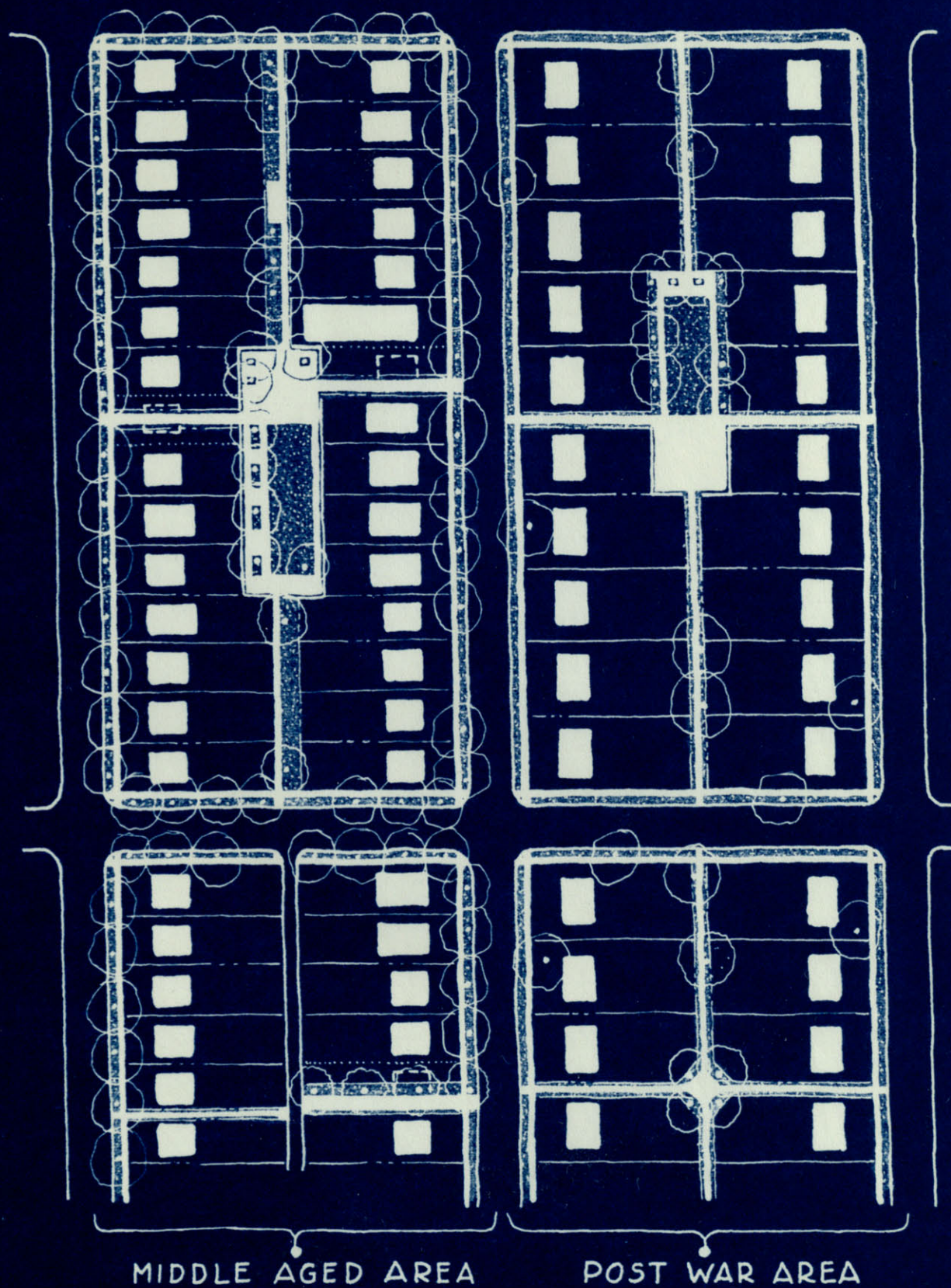
Shelters to protect people waiting for a bus, from the elements, would be relatively simple to provide but it seldom has been done. They would add greatly to the convenience of riding transit and thus encourage its use. In order to save on cost they might be built only on alternate bus stops. Then during inclement weather a person would have the choice of walking an additional block to a shelter, which, secondarily, can also serve as a neighbors' meeting place.

In warmer climates, such a shelter need only give protection from wind and rain. There should be an electric light on the inside.

In climates with bitter winters a heated enclosure should be worth the extra expense. Small efficient heating units that require minimum servicing are available today.

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<sup>1</sup>Lynch, K., op. cit., p. 4.

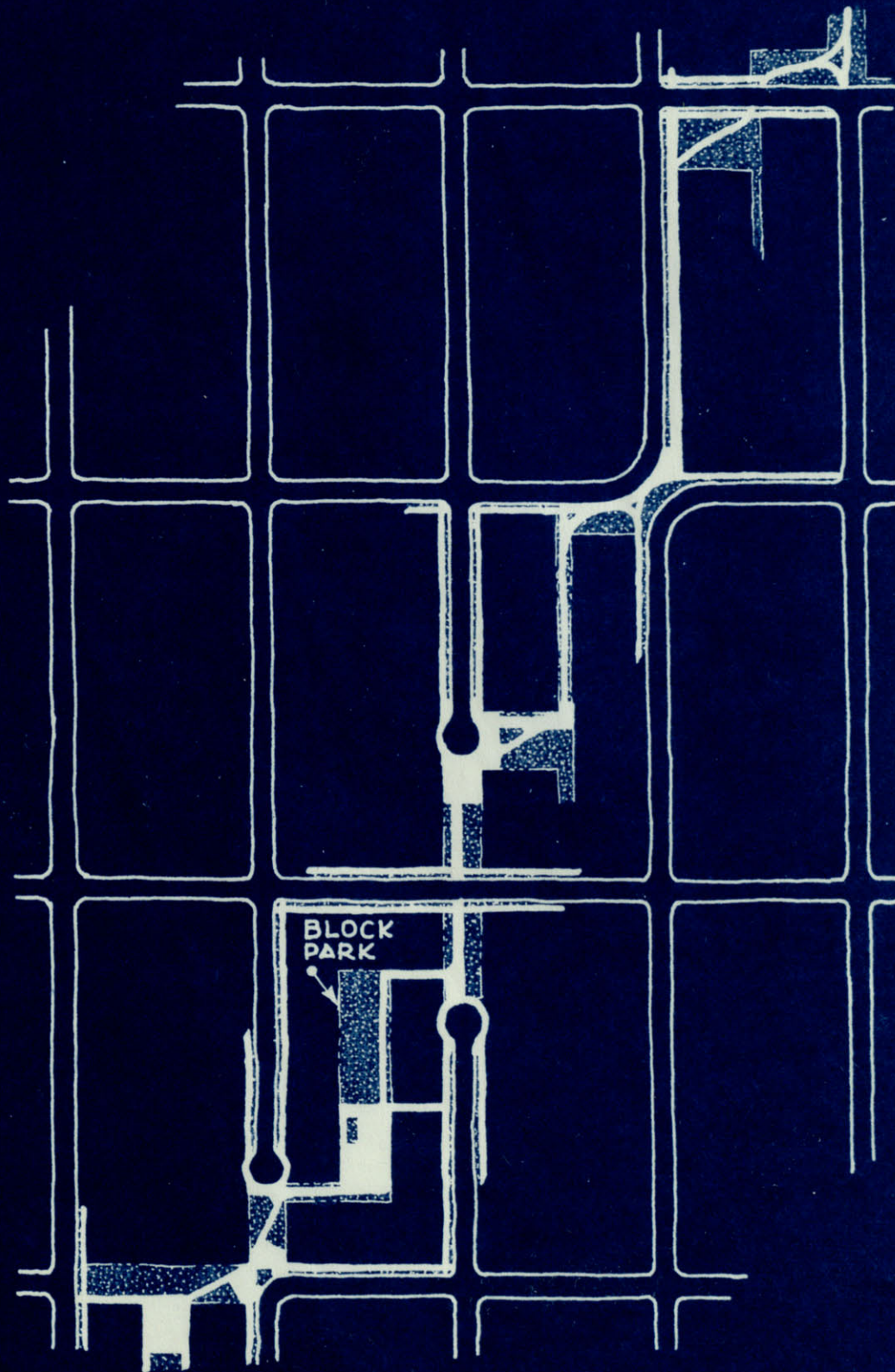


**FIGURE 65**

WALKWAYS ACROSS BLOCK

..... OLD LOT LINE

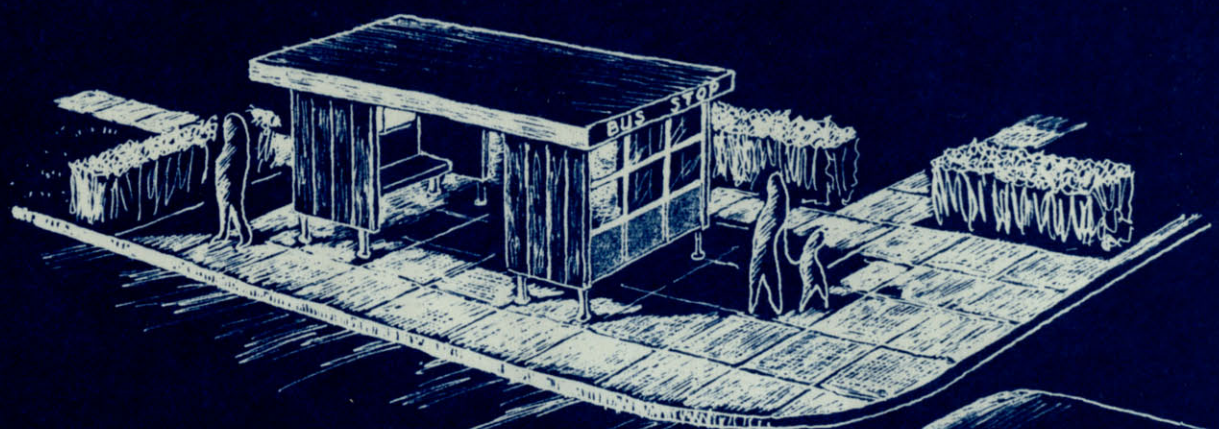




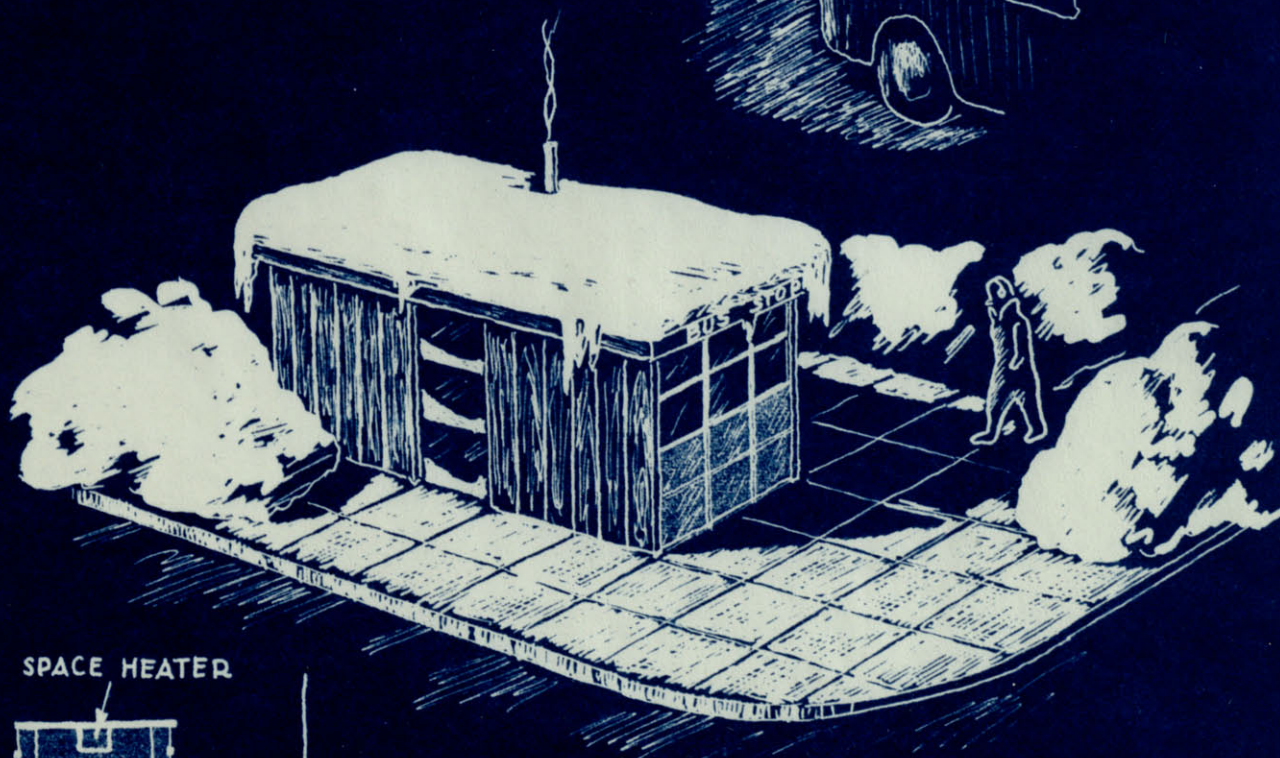
**FIGURE 66**

DIAGONAL GREENWAY

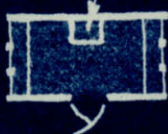




A. WARM CLIMATE



SPACE HEATER



B. COLD CLIMATE

**FIGURE 67**

BUS STOP SHELTERS



## 8. METHODS OF REARRANGING UNDESIRABLE MIXTURES OF NEIGHBORHOOD ELEMENTS AND FOR DEVELOPING SOCIAL FOCI

### Figure 68 - Apartments too close to residences.

A multi-family structure does not need as much lot space per family as a single-family dwelling does, but the entire structure should have a larger lot. Assuming 18 dwelling units in this apartment building, there should be off-street parking for about as many cars. In this case three houses must be bought and moved.

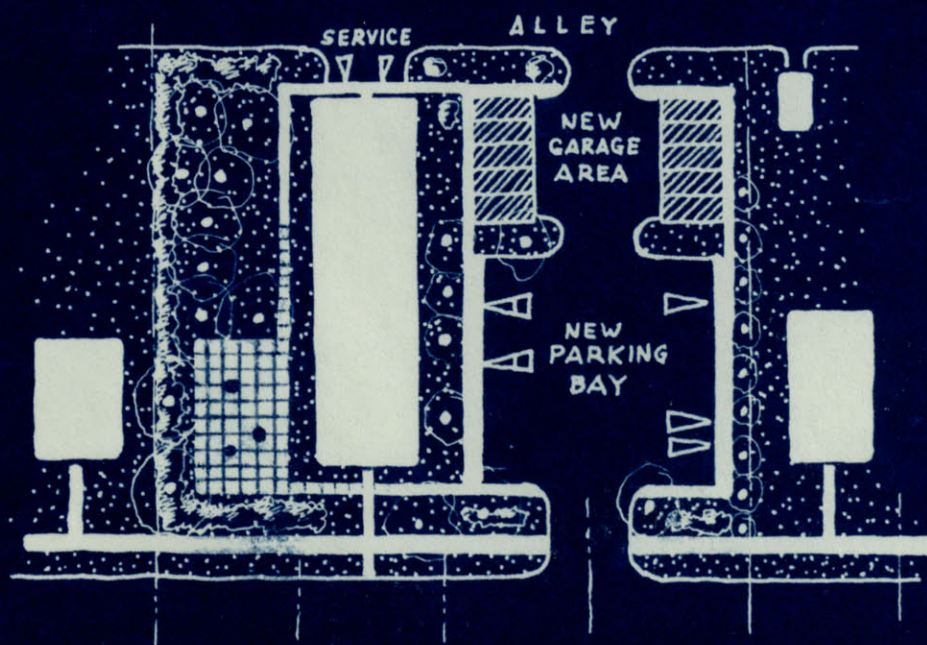
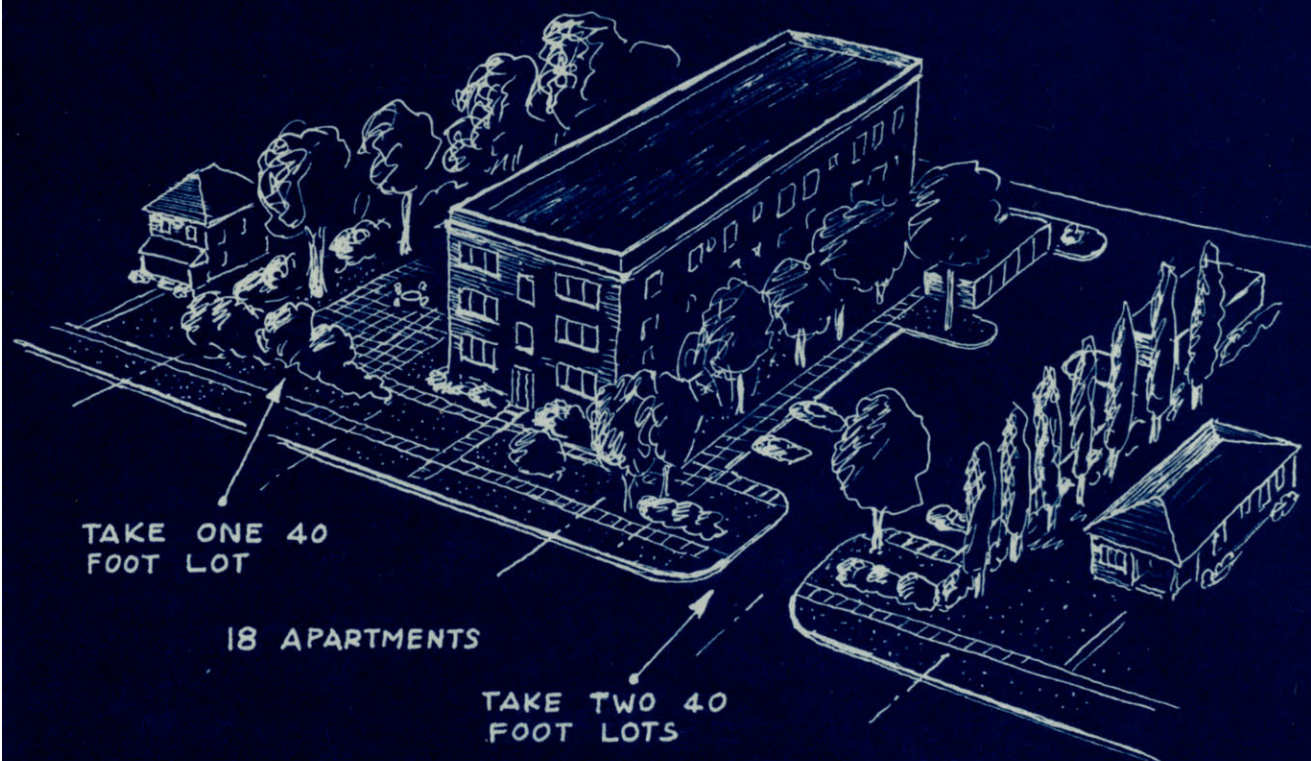
### Figure 69 - Remove traffic-generating uses from quiet streets.

The present mixture of traffic-generating services which are located on almost any street, causes all streets to have at least a moderate amount of traffic including delivery trucks. If most of these stores, churches, clubs, schools, etc., are given access directly to a few larger streets, then all but the very lightest kind of traffic will be confined there. As a result only a few streets will need expensive heavy duty pavement and the existing pavement on the remaining streets will last much longer. Also, the latter streets will be quieter and safer and can be arranged into loops and cul-de-sac without inconveniencing uses which need direct access and visual prominence. With rearrangement of services foci can be formed (see Chapter Four, section 11).

The advantages of social foci in a neighborhood were given in Chapter Two. Following are suggestions for ways in which these foci might be achieved in the framework of existing neighborhoods.

### Figure 70 - Neighborhood shopping center.

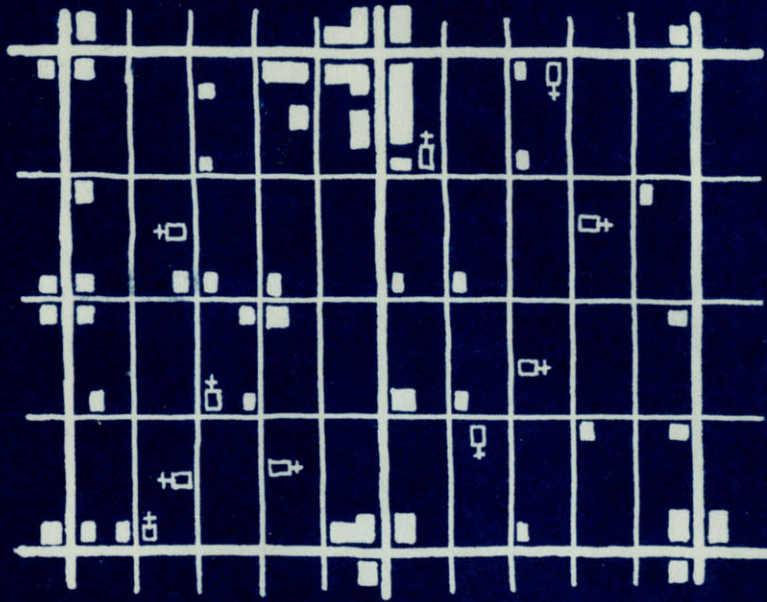
Such a facility is present in most neighborhoods. Suggested elements: shopping center, elementary school, playground, park, bus stop and transfer point. Vehicular and pedestrian hub, churches and clubs, large parking lots, bulletin board, branch library, paved areas and benches.



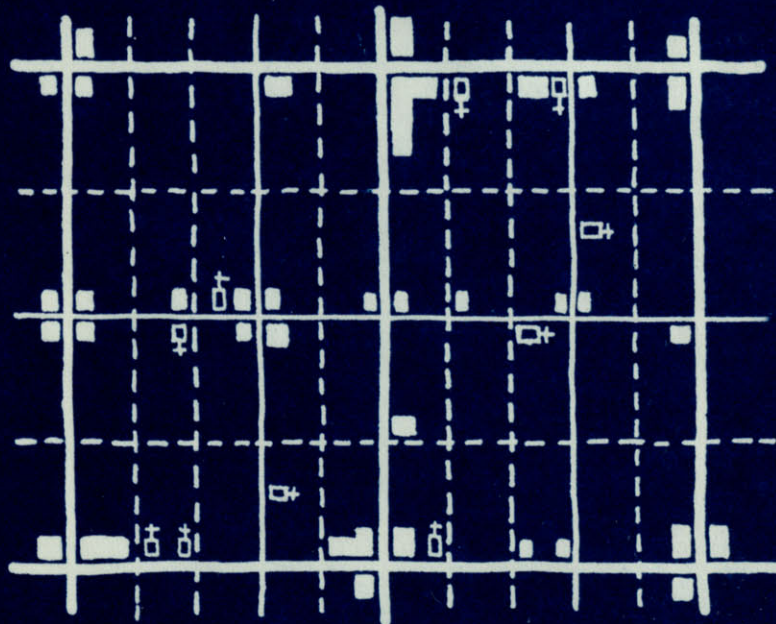
**FIGURE 68**

APARTMENTS TOO CLOSE TO RESIDENCES





MIXTURE OF USES ON ALL  
STREETS



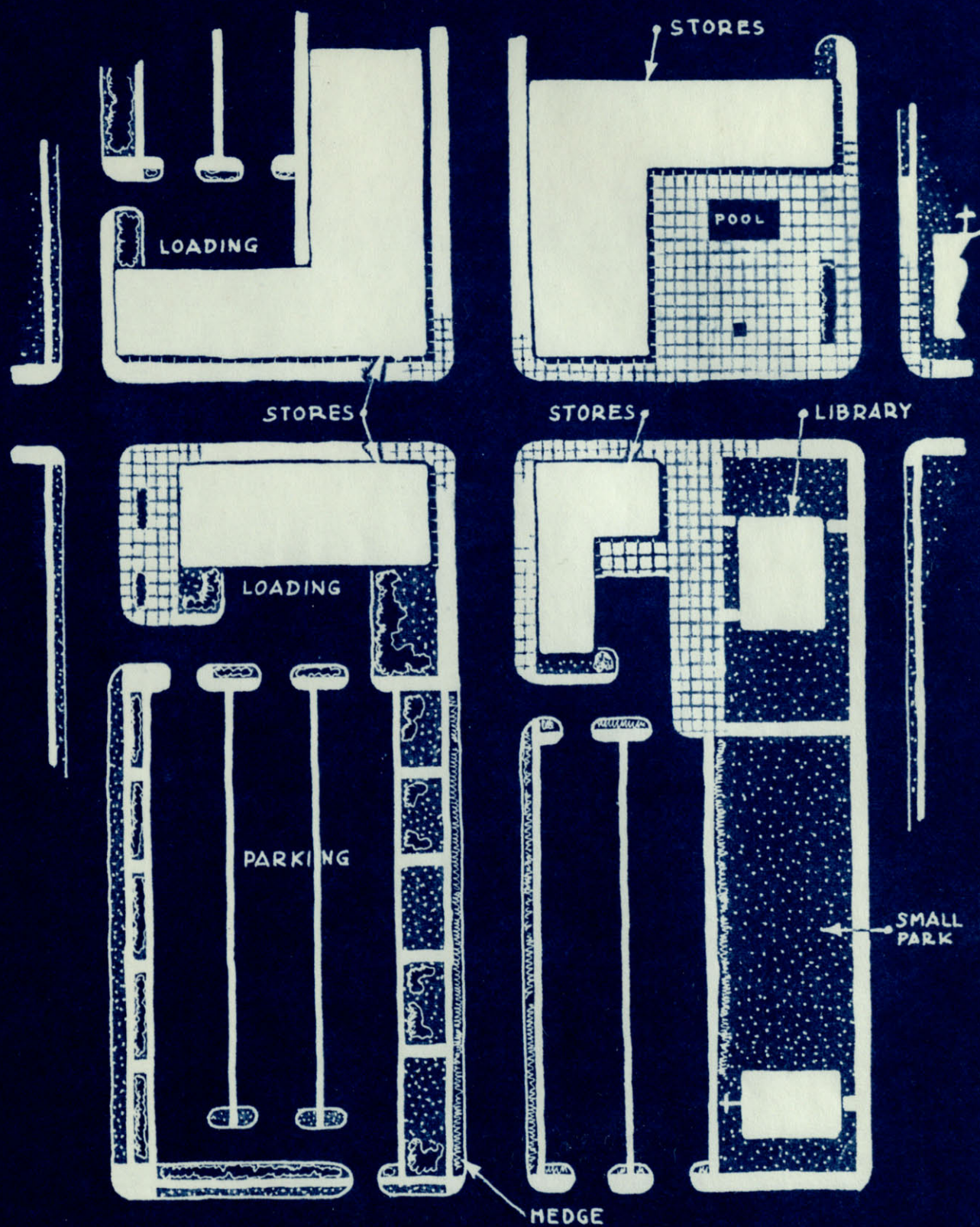
TRAFFIC GENERATING USES  
CONFINED TO A FEW STREETS

■ BUSINESS OR COMMERCIAL  
--- LIGHT DUTY STREET

## FIGURE 69

REMOVE TRAFFIC GENERATING USES FROM QUIET STREETS





**FIGURE 70**

NEIGHBORHOOD SHOPPING CENTER



Figure 71 - Sub-neighborhood center.

This type of center may be formed by adding elements to an existing facility such as a few stores, a church or two, or a community center. Elements that should be present if they are nearby: small shopping cluster, churches or clubs, bus stop, pedestrian and vehicular hub, parking lot, and small park. Additional elements suggested may also be: play lot, primary or nursery school.

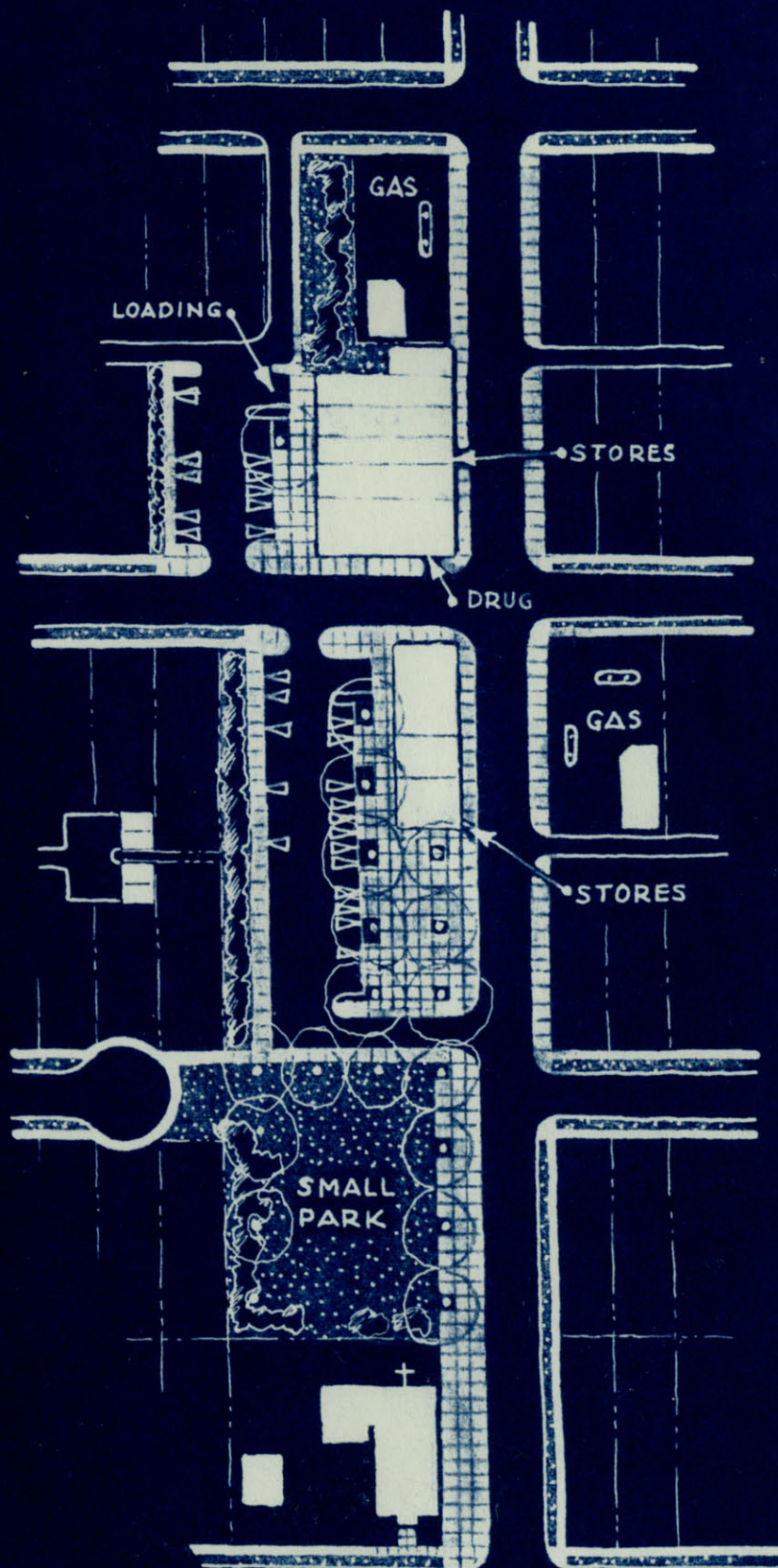
Figure 72 - Block cluster center.

An area of several blocks, or the size that a grocery store can serve, might use such a store and a bus stop as a focus. This might be for 8 to 12 blocks. Other suggested elements: bulletin board, paved area, benches, and pedestrian route hub.

Figure 73 - Block park.

This is a cooperative venture of converting the back yards area of a block into a park or social gathering place, as provided in figure 58.

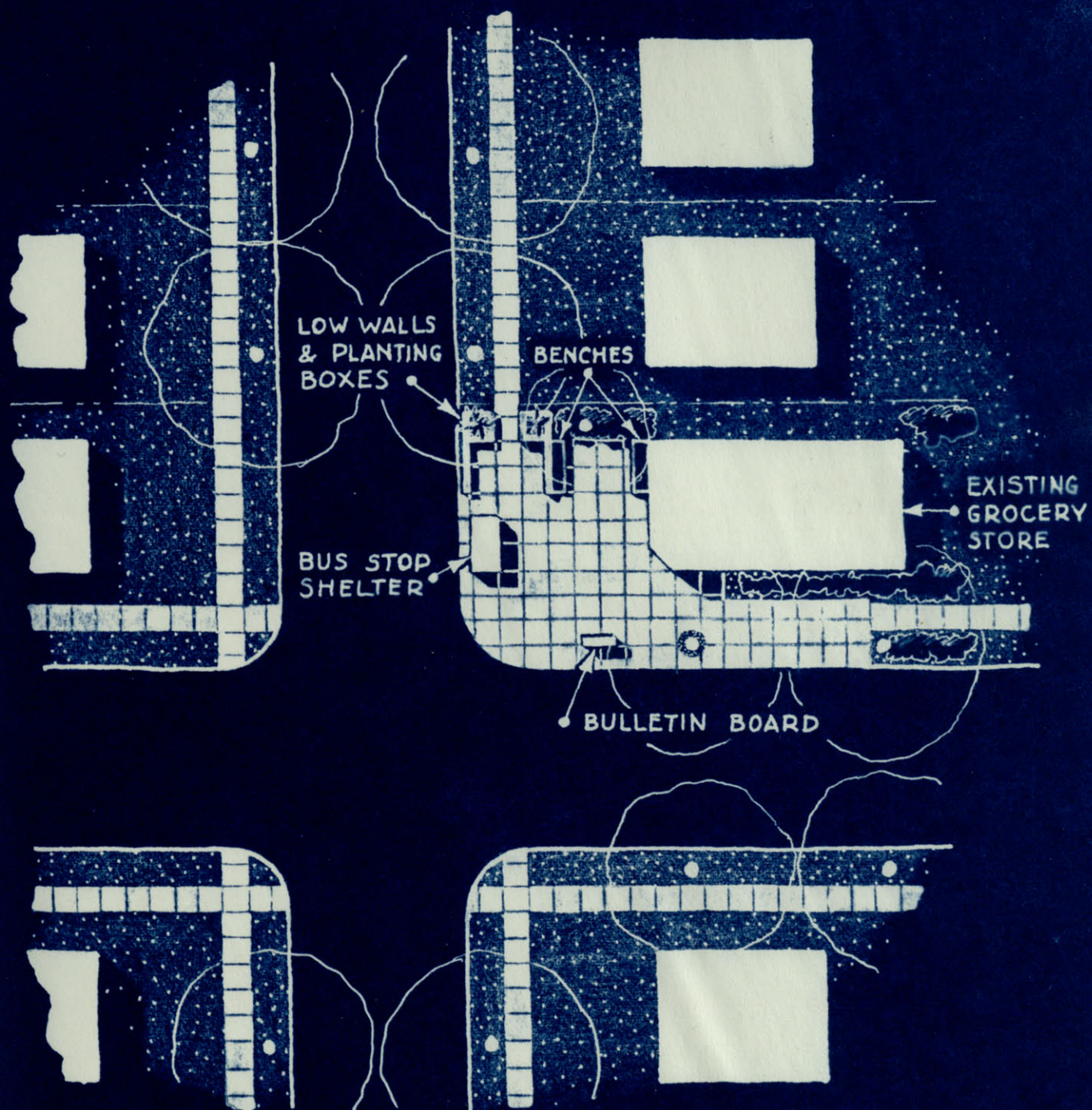
For a similar arrangement for front yards see figures 38, 39 and 40.



**FIGURE 71**

SUB NEIGHBORHOOD CENTER

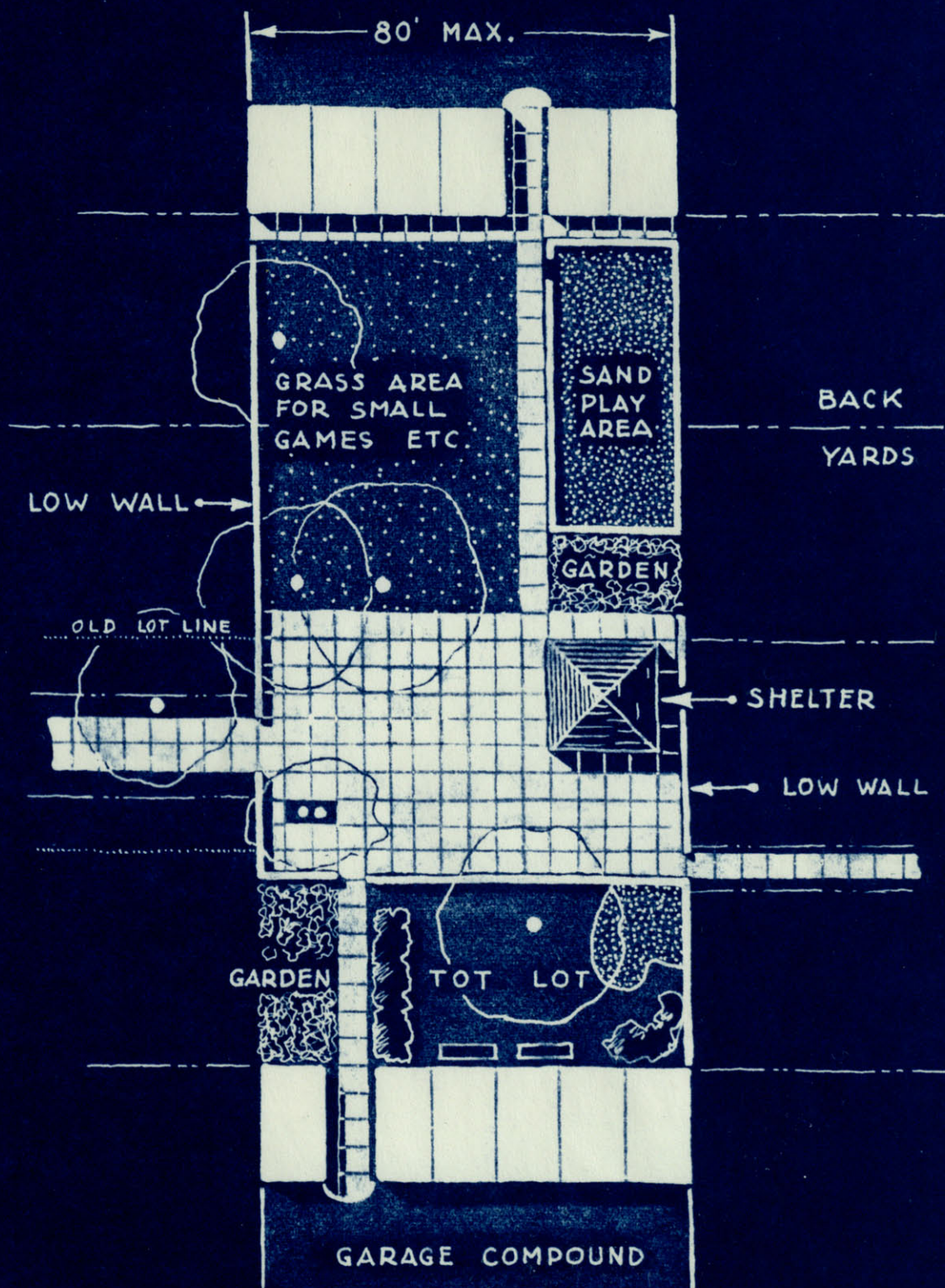




**FIGURE 72**

BLOCK CLUSTER CENTER





**FIGURE 73**

BLOCK PARK



## 9. METHODS OF RE-FORMING OUTDOOR SPACES FOR IMPROVEMENT OF NEIGHBORHOOD FUNCTIONS AND ESTHETICS

The types of residential areas with which this thesis deals generally have a monotonous similarity of outdoor spaces, views, and street pictures. An example of this is the typical tree-lined view which is repeated on every street. There is a possibility of achieving much more variety in space enclosures, some small and intimate, some formal, some expansive.

A space is defined by floor, walls, and ceiling. Some examples of materials or devices that can be used as outdoor space definers are:

### floor

- patterns of grass
- pavement
- raw dirt or sand
- water

### walls

- buildings
- fences
- railings
- masonry walls
- shrubbery
- trellis
- posts
- curbs
- embankments of dirt

### ceiling

- trees
- overhead trellis
- eaves or roofed structures
- awnings
- telegraph wires
- covered walk canopy

Several illustrations for developing more interesting spaces follow:

Figure 74 - Revise tree rows to create new spaces.

The typical middle-aged neighborhood rows of trees might be revised by selectively removing a few to create new open spaces which can be defined in a different manner from now by new rows and groupings. Contrasts in tree coverage can be developed : some areas would have a dense woods-like character, other areas would be quite open. Consideration must be given to the resistance many residents will show toward having trees removed from in front of their houses to carry out such a scheme.

Figure 75 - Plant new trees in post World War II areas to create new spaces where few trees now exist.

Typical new residential developments have either no trees or just saplings which can easily be transplanted. The designer has relatively virgin territory here to create new interesting, different, and pleasant spaces with the arrangement of trees. His palette is broad.

Figure 76 - Walls and hedges for space definers.

The sketch suggests the type of spatial arrangements that might be achieved by "wall" type space definers.

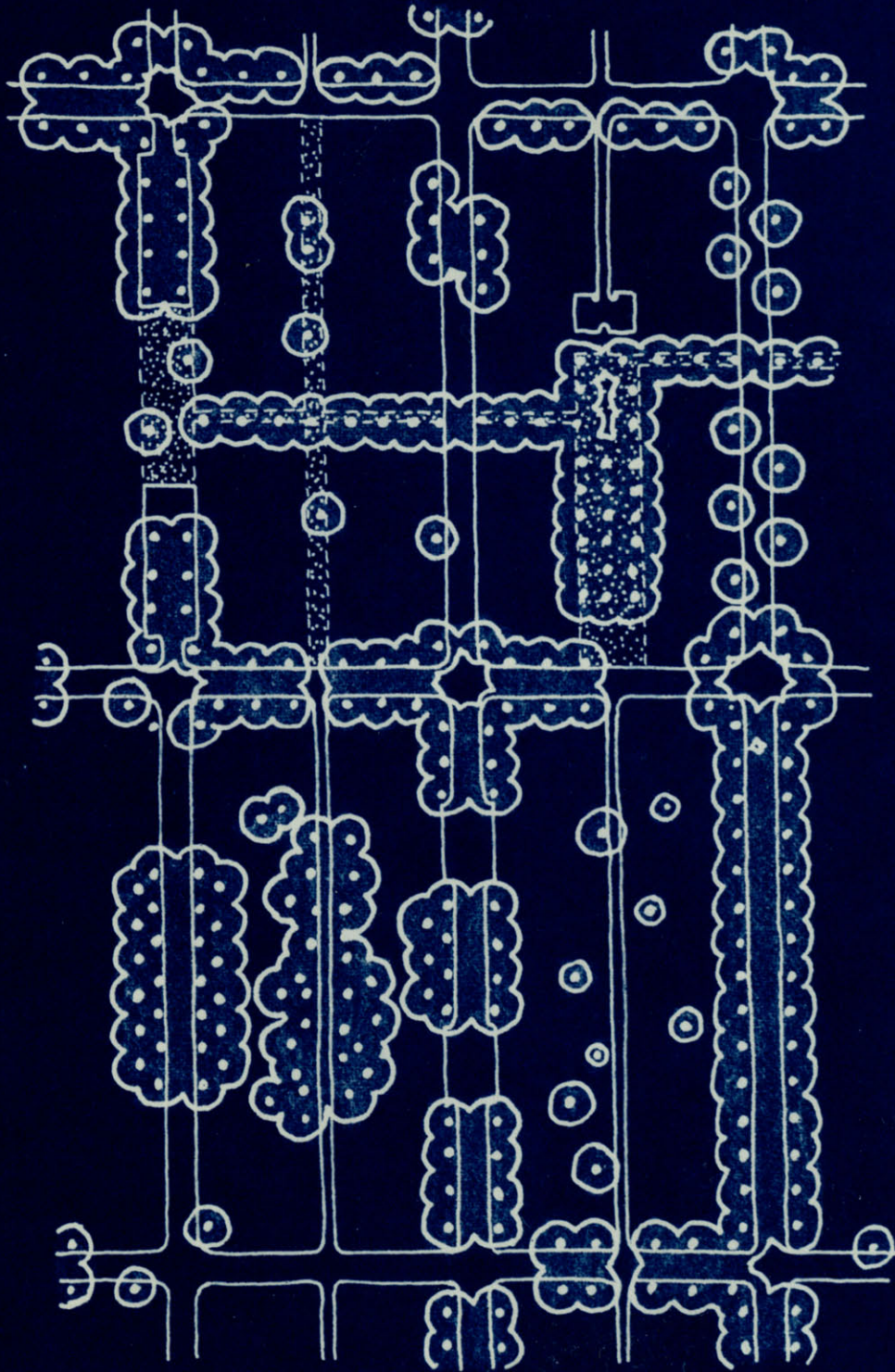
Figure 77 - Move houses or other buildings.

The re-arrangement of houses which may be for any of a number of reasons can be utilized also to form various space enclosures as shown.

Figure 78 - Hi-rise apartments can add interest to the cityscape if spaced widely.

Such structures spaced at intervals of one building or one group in several square miles can make interesting views and they can aid to orientation of oneself.



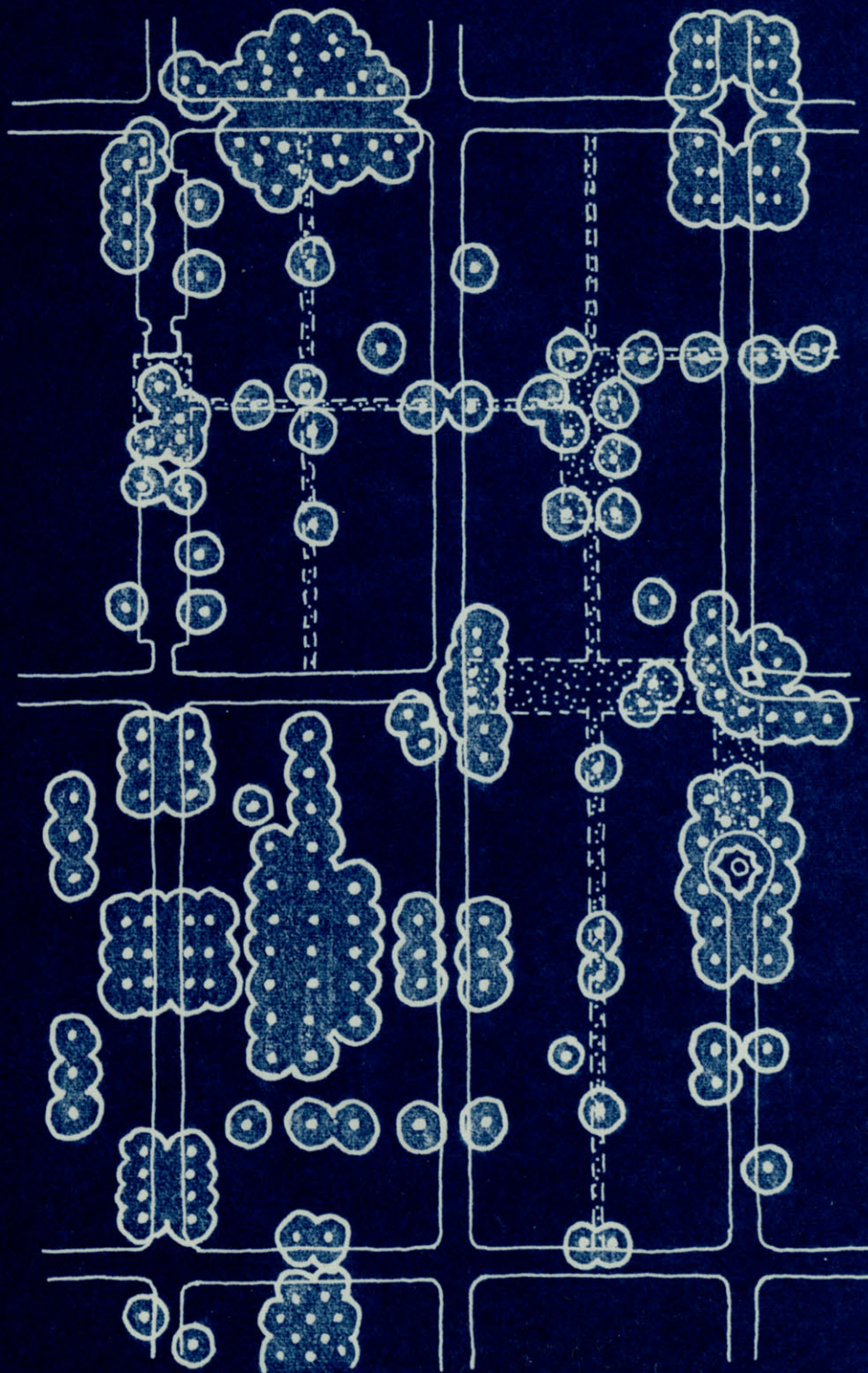


PEDESTRIAN WAY  
OR BLOCK PARK

**FIGURE 74**

REVISE TREE ROWS TO CREATE NEW SPACES



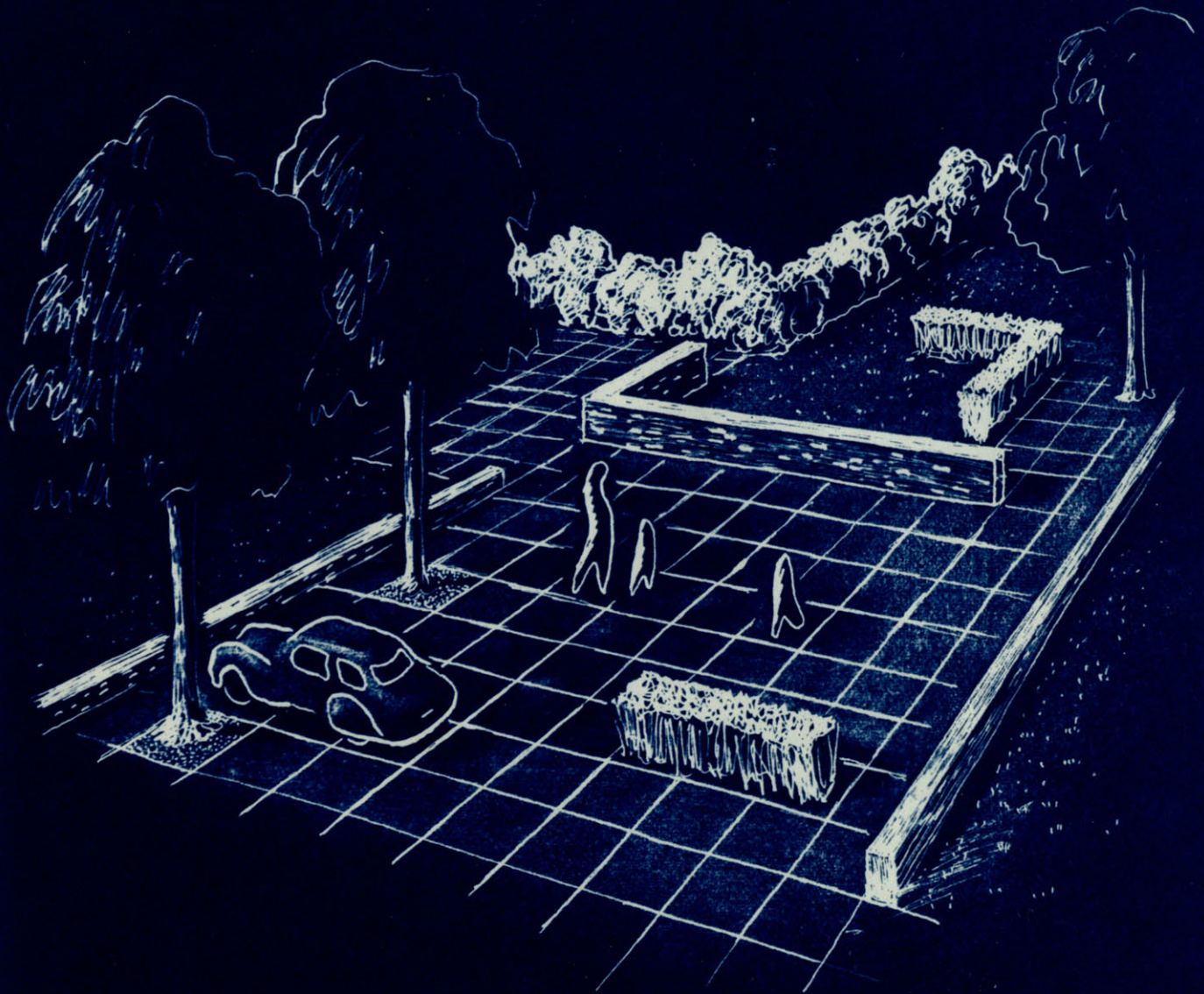


PEDESTRIAN WAY  
OR BLOCK PARK

## FIGURE 75

PLANT NEW TREES IN POST WORLD WAR II AREAS  
TO CREATE NEW SPACES WHERE FEW TREES NOW  
EXIST

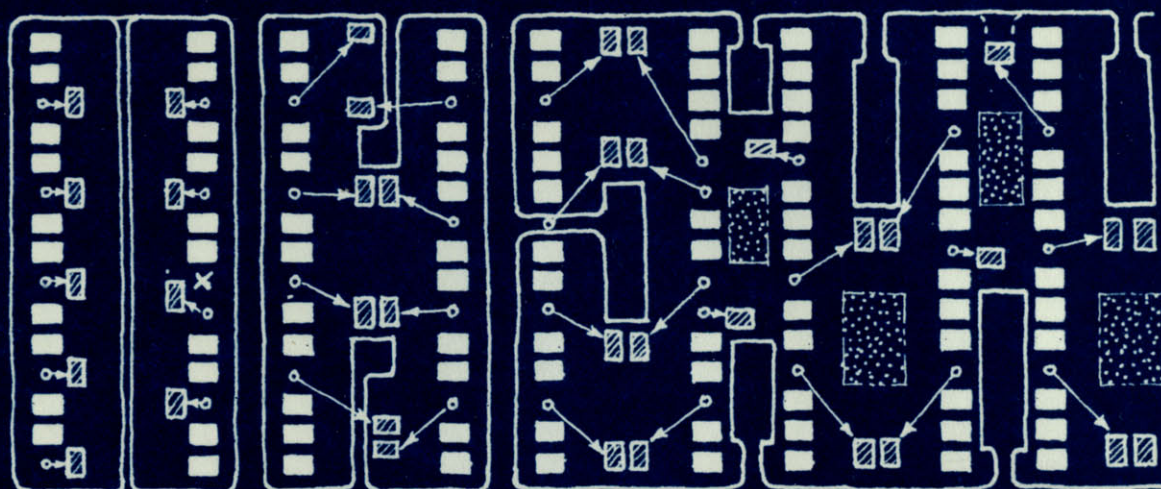




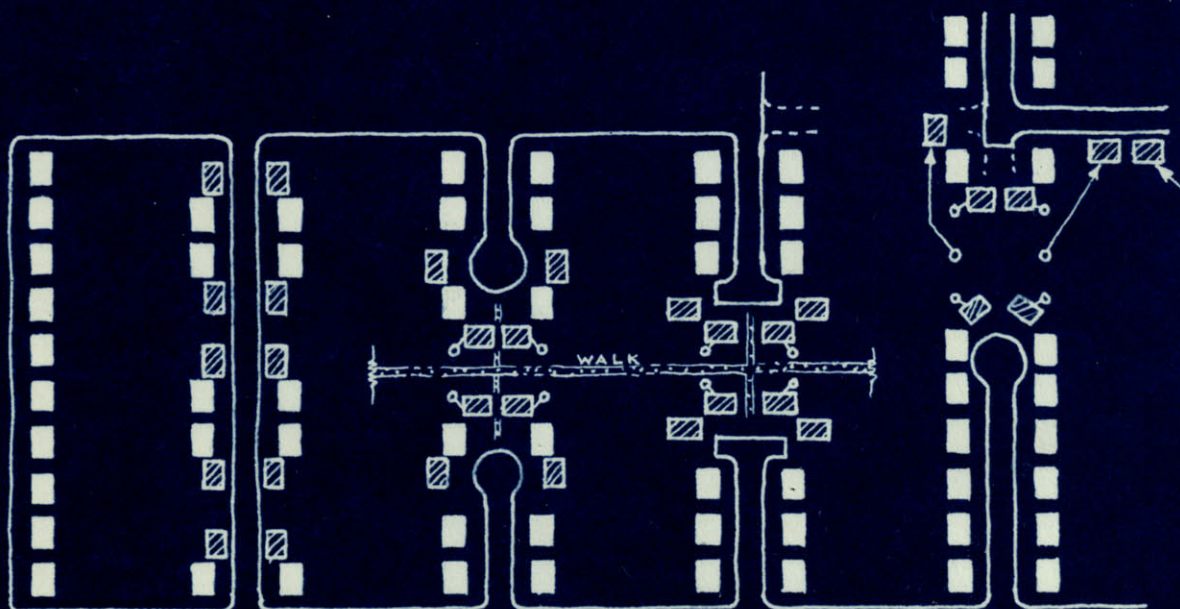
**FIGURE 76**

WALLS AND HEDGES FOR SPACE DEFINERS





IDEAS FOR MIDDLE AGED AREAS



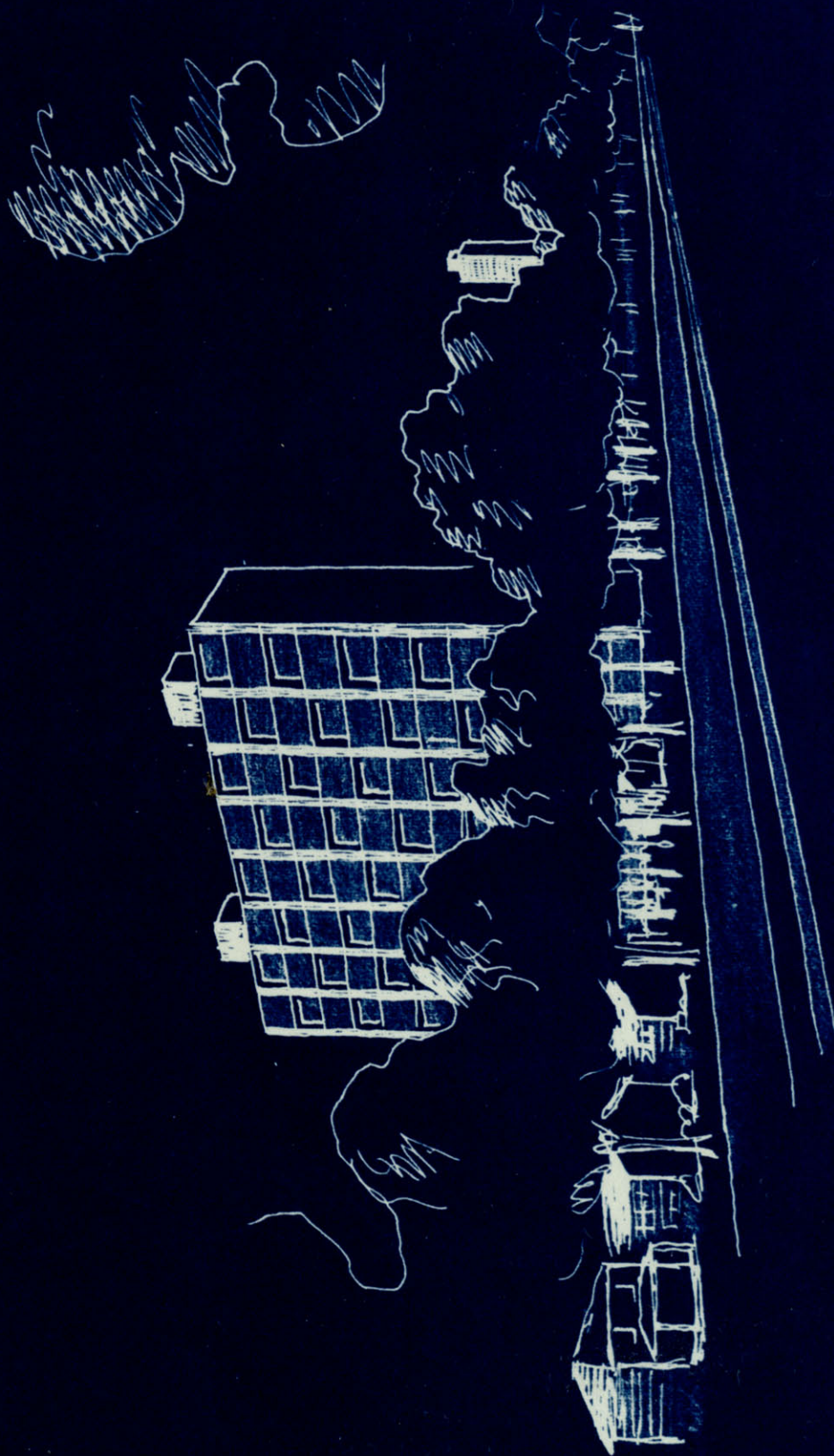
IDEAS FOR POST WAR AREAS

- ▨ MOVED HOUSE
- × DILAPIDATED HOUSE REMOVED
- ▨ PARK

**FIGURE 77**

MOVE HOUSES OR OTHER BUILDINGS





**FIGURE 78**

HI-RISE APARTMENTS CAN ADD INTEREST TO THE  
CITYSCAPE IF SPACED WIDELY

## 10. SUGGESTIONS FOR TREATMENT OF VISUAL DETAILS

The small details that a person sees every day and becomes familiar with in his neighborhood are very important in helping him to identify with his home area. If these details are pleasing and charming they may very well have a favorable effect on neighborhood spirit and on the values of properties there. Following are some examples of possibilities for treatment of details to give that extra brightness and sparkle to the neighborhood scene.

### A. Pavement treatments

There is evidence from studies now in progress<sup>1</sup> that people tend to notice and remember much about the surfaces they walk on. This suggests that perhaps a good deal more attention should be given than has been to sparking up the appearance of street and sidewalk pavements.

Figure 79 - Surface treatment suggestions.

Figure 80 - A sundial.

This is shown as an example of one device which not only can add interest to the urban scene (as a sculptural form) but can have an educational value as well. When children inspect this device they will learn visually the nature of the path the sun takes across the sky; they will see just how high it is in the summer and how low in the winter. This is only to suggest ideas for other devices that may have similar educational value. Such an object might be located in a shopping center or near a school.

### B. Street furniture

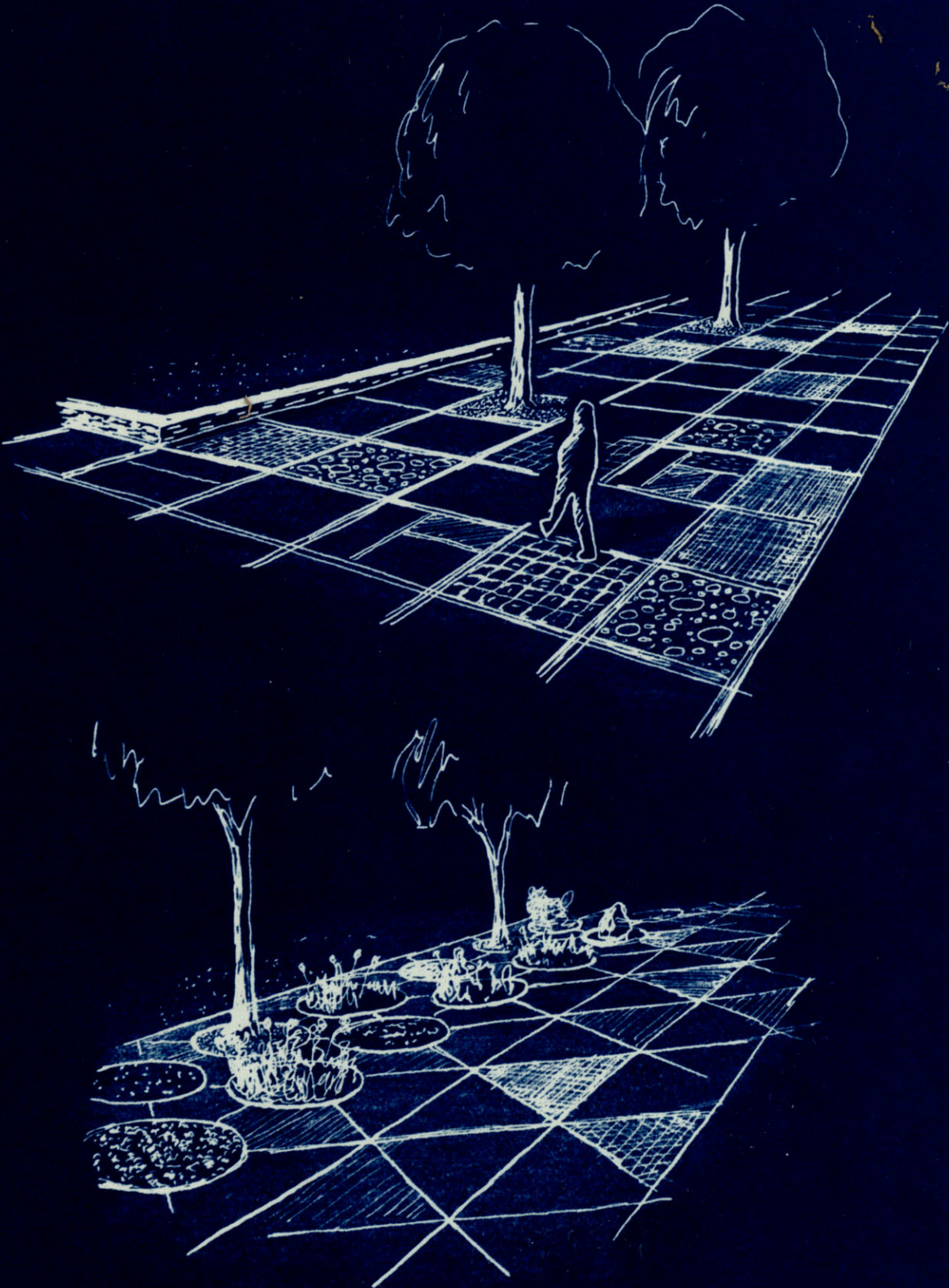
The following objects might be painted in interesting colors:

Street light poles and fixtures  
Telegraph poles - stain various colors

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<sup>1</sup>Perceptual Form of the City Study (see Chapter Two, section F)

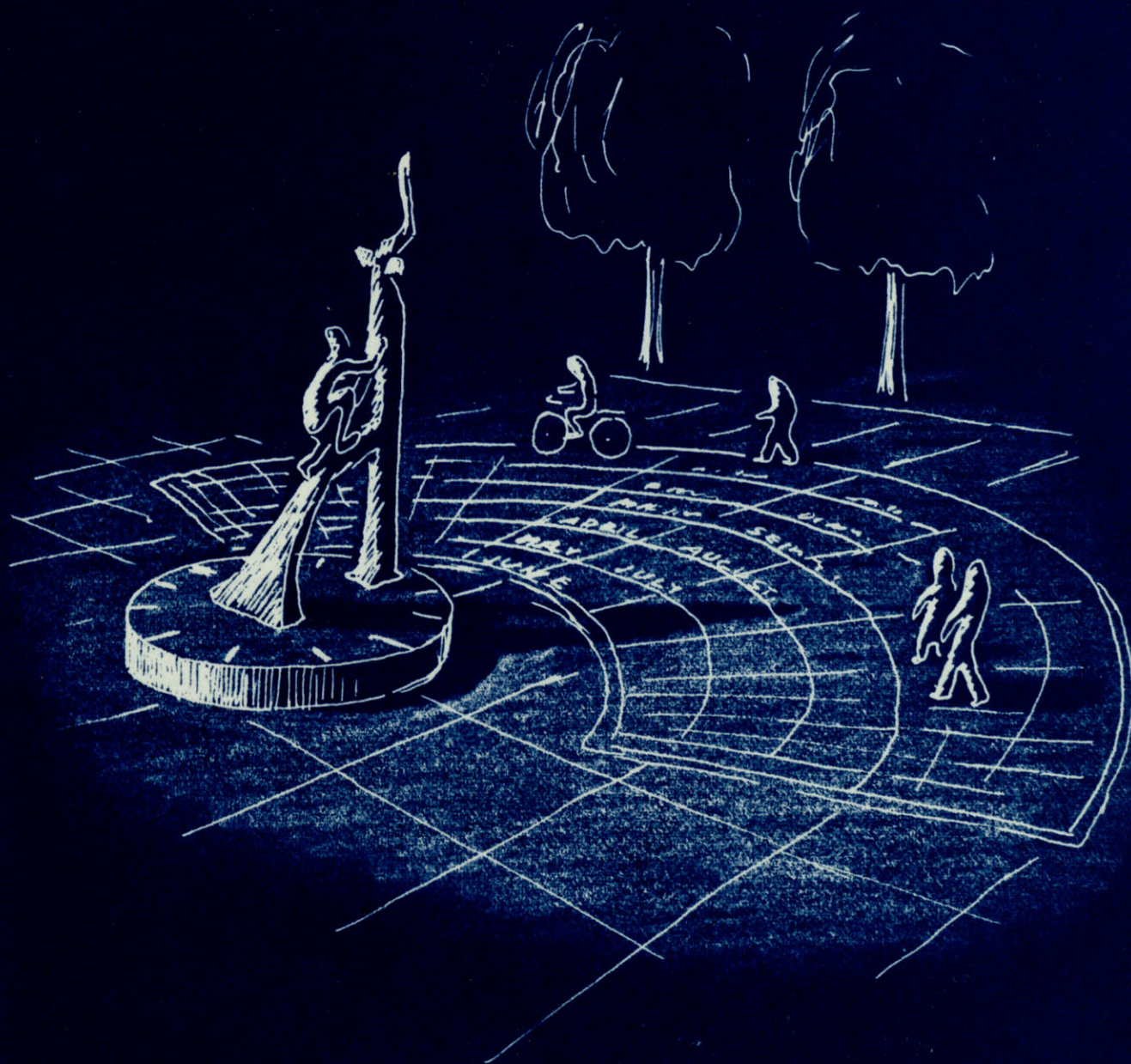




**FIGURE 79**

SURFACE TREATMENT SUGGESTIONS





**FIGURE 80**

A SUNDIAL



Telephone booths  
 Bus stop shelters  
 Parking meter posts.  
 Manhole covers, catch basins  
 Waste containers  
 Flag poles

Figure 81 - Sculptural effects.

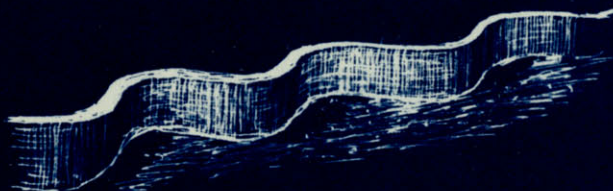
Sculptural effects are possible in:

Walls  
 Benches  
 Structures on sidewalk that belong to fronting  
     business, such as a clock in front of a  
     jeweler or a display case of some sort.

There are wonderful sculptural possibilities in playground equipment which have been tried already.

Idiosyncratic details to individual houses and lots

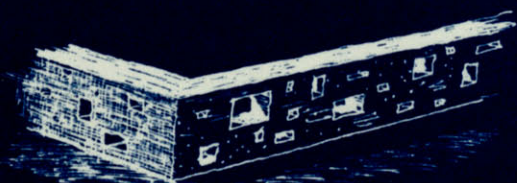
A social climate in the neighborhood that encourages individual property owners to apply original and unusual treatments to their houses and lots (within reason) can produce an interesting city scene. In this way individual personalities can show up in every house and give the neighborhood a certain genuineness and appearance of being the habitat of individuals, each with his own special qualities, as can be done in no other way.



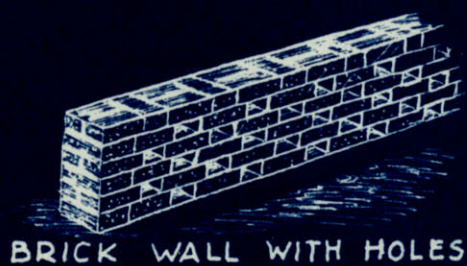
SERPENTINE WALL  
(STRONG WHEN THIN)



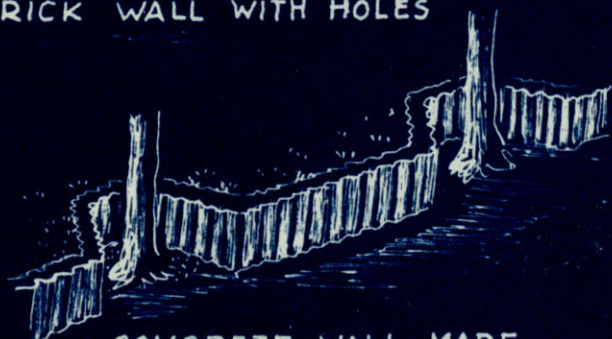
ZIG ZAG BRICK WALL



ONE OF MANY POSSIBLE  
SCULPTURAL EFFECTS IN  
WALLS



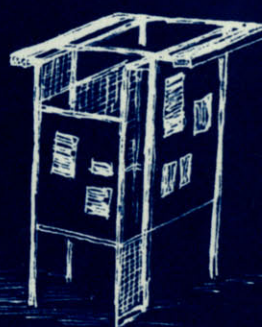
BRICK WALL WITH HOLES



CONCRETE WALL MADE  
WITH CORRUGATED FORMS



FREE FORM  
(KIDNEY BEAN SHAPE)



BULLETIN BOARDS



SCULPTURE

## FIGURE 81

SCULPTURAL EFFECTS



# 11. IDEAS TO EASE DIRECTION FINDING TO OVERCOME PROBLEMS CAUSED BY STREET PATTERN CHANGES

With many streets which were once through being converted into loops and culs-de-sac, there will be many uncomplimentary words uttered by drivers who turn into dead-ends while looking for a through street. A system should be devised to inform drivers as easily as possible where they should turn or not turn to get where they want to go. There are several ways that should prove not to be very expensive.

## A. Coding systems to conveniently indicate dead-end streets to drivers: (one or more may be used)

### 1. Color symbols

Perhaps paint the posts of street name signs green at the entrance to a cul-de-sac or loop and yellow at all intersections with streets that go through. The color of the name plates may also be different.

Paint curbs at entrances to dead-end streets or paint lines across pavement at the entrance. Different colored pavements as shown in figure 23 are an excellent device for this purpose.

### 2. Size, shape and texture pattern of indicating devices

The lettering size on street name signs may contrast for different types of street, or it may be of lower case for dead-end street names and capitals for through street names.

The sign plate may have a different size or shape; one may be oval, the other rectangular.

A consistent visual device such as a hedge could border a through street as shown in figure 23. This contrasts with no hedge along dead-end streets.

Figure 82 - Use of islands and the closing of streets to clearly distinguish dead-end and through streets.

By this positive method of indicating dead-end streets a driver would not easily mistake them as through. A small island as shown in the cul-de-sac entrance has been proposed in the Woodlawn neighborhood conservation plan in Chicago.<sup>1</sup>

### 3. Street Naming System

Dead-end street names might be confined to terms such as COURT, PLACE, CIRCLE, TERRACE, etc. Through streets could be given the names STREET, AVENUE, WAY, ROAD, BOULEVARD, DRIVE, etc.

Figure 83 - A street naming system designed to make the finding of addresses easy.

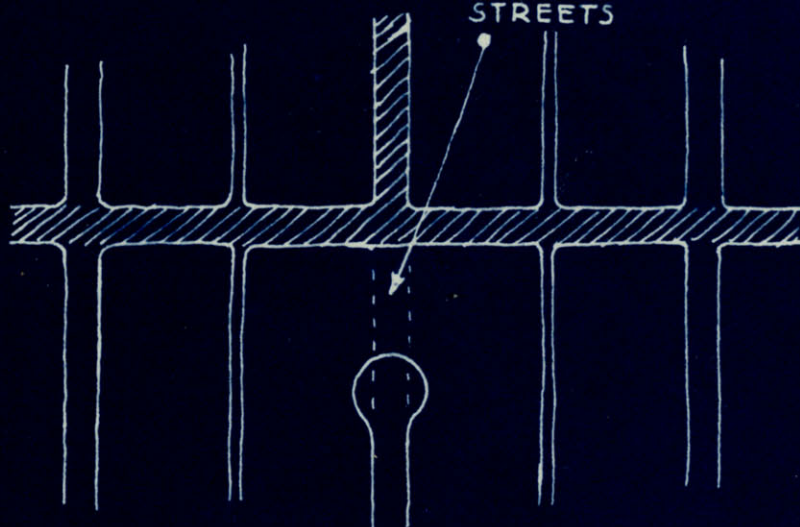
Many cities have street naming systems basically similar to this proposal but the point of difference is its adaptation to a neighborhood-superblock system. This is a hypothetical grid which is more uniform than that of most cities.

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<sup>1</sup> Woodlawn, A Study in Community Conservation, op. cit.



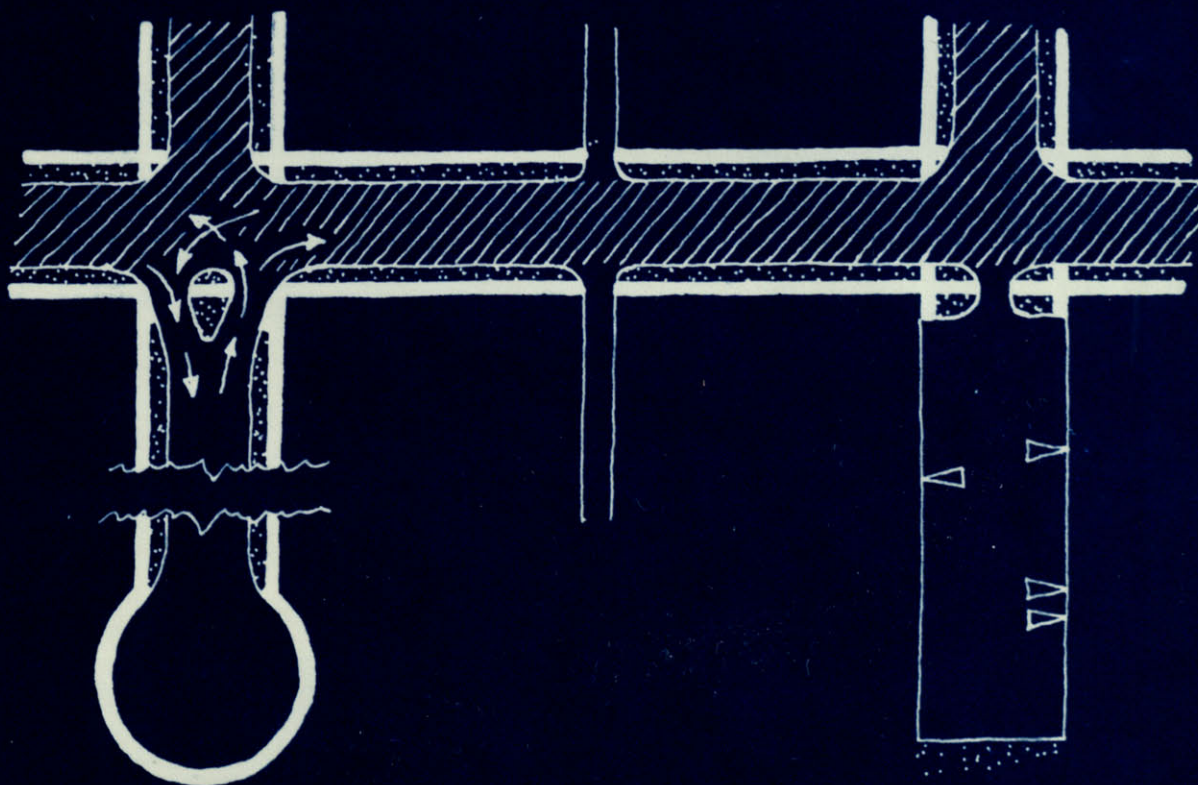
CLOSED TO SIMPLIFY AND CLARIFY  
THE INTERSECTION OF THROUGH  
STREETS



THROUGH STREET  
DEAD-END OR LOOP



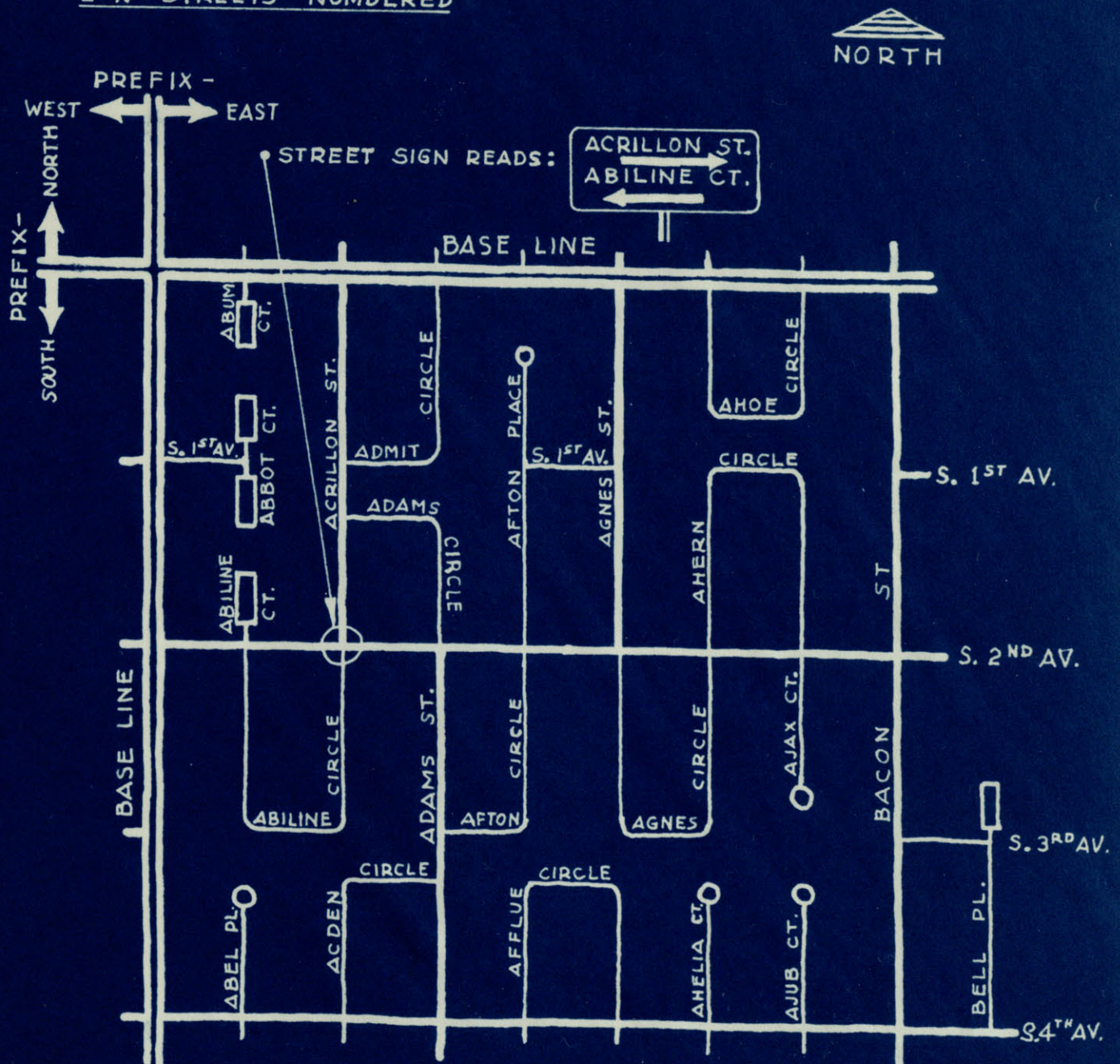
DIP IN GUTTER IS SIMPLE  
EFFECTIVE METHOD OF  
INDICATION



**FIGURE 82**

USE OF ISLANDS AND THE CLOSING OF STREETS TO CLEARLY  
DISTINGUISH DEAD-END AND THROUGH STREETS





IN THE FIRST SUPERBLOCK ALL N-S STREETS' NAMES BEGIN WITH THE LETTER "A"; THE SECOND SUPERBLOCK "B", ETC. - TO MIDDLE OF ALPHABET. WEST OF THE BASE LINE THE NAMES START WITH LETTER "N" AND CONTINUE TOWARD "Z".

SECOND LETTERS OF INTERIOR STREET NAMES IN SUPERBLOCKS ARE IN ALPHABETICAL ORDER BUT THOSE THAT DO NOT MAKE SUITABLE NAMES WHEN COMBINED WITH FIRST LETTER ARE SKIPPED.

## FIGURE 83

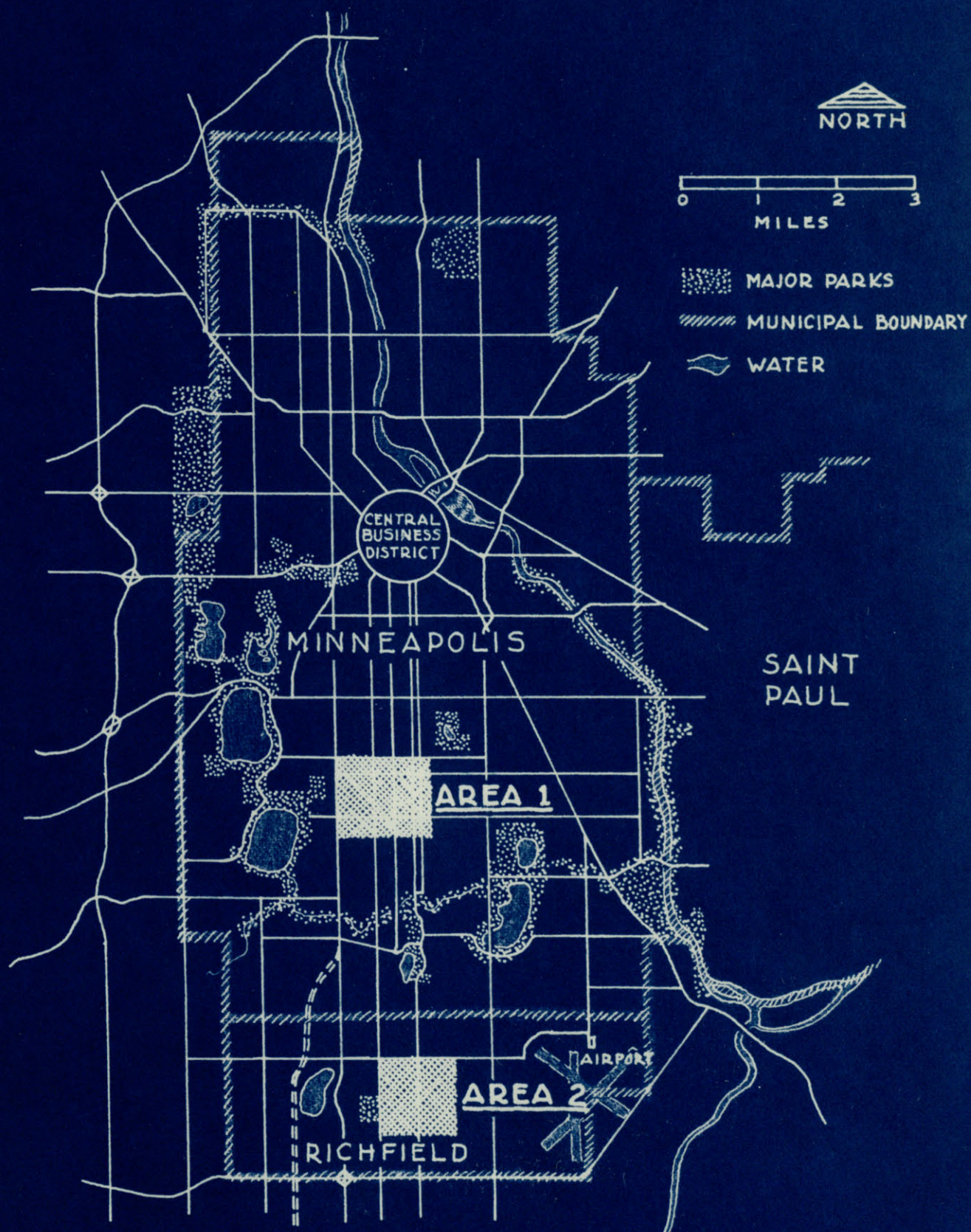
A STREET NAMING SYSTEM DESIGNED TO MAKE THE FINDING OF ADDRESSES EASY



CHAPTER FOUR  
APPLICATIONS OF DESIGN IDEAS TO TWO  
SAMPLE NEIGHBORHOODS

Both of these sample neighborhoods are taken from street plans of actual residential areas in Minneapolis, Minnesota, and vicinity. The residential development in these two areas is quite typical in most respects of a great number of cities in the United States, west of the Appalachian Mountains.

The two sample areas are used to help clarify the way in which many of the design ideas in chapter three are intended to be applied. A large number of ideas have been shown on the maps for the purpose of illustrating the applications of a maximum number of them. This is the primary purpose of these samples, they are not intended to be designs of how the actual places they represent should be changed. In actual neighborhood conservation projects just a few properly selected design ideas would ordinarily be sufficient.



**FIGURE 84**

LOCATION OF SAMPLE NEIGHBORHOODS



AREA 1A Middle-Aged Neighborhood

This sample is based on a one and one-quarter square mile area in Minneapolis. It is bounded by Lyndale Avenue, Chicago Avenue, Thirty-sixth Street, and Forty-fourth Street. An estimate based on 1950 Census Tract figures shows the following population characteristics:

Population of total $1\frac{1}{4}$ square miles	16,900
Average population per square mile	13,500
Number of Dwelling Units in the $1\frac{1}{4}$ square miles	5,200
Children of Nursery through 6th grade age in the total $1\frac{1}{4}$ square miles	1,700

Figure 85 - Before.

The street plan as shown, the rights-of-way, location of alleys, the schools, churches, and parks, are based on the USGS map of the area (1952) two city maps, a zoning map,<sup>1</sup> and personal knowledge, and are accurate. The business uses are only approximations of what exists. The remaining features are assumed to be as in Chapter One.

Figure 86 - After.

This plan shows the area divided into six sub-neighborhoods. Some of the dividing lines are not very decisive. Emphasis is put on developing foci rather than dividing lines in this plan. Two elementary schools serve the area, one the north half, the other the south. These elementary schools are assumed to have second grade through sixth grade, and the primary schools start with nursery school classes.

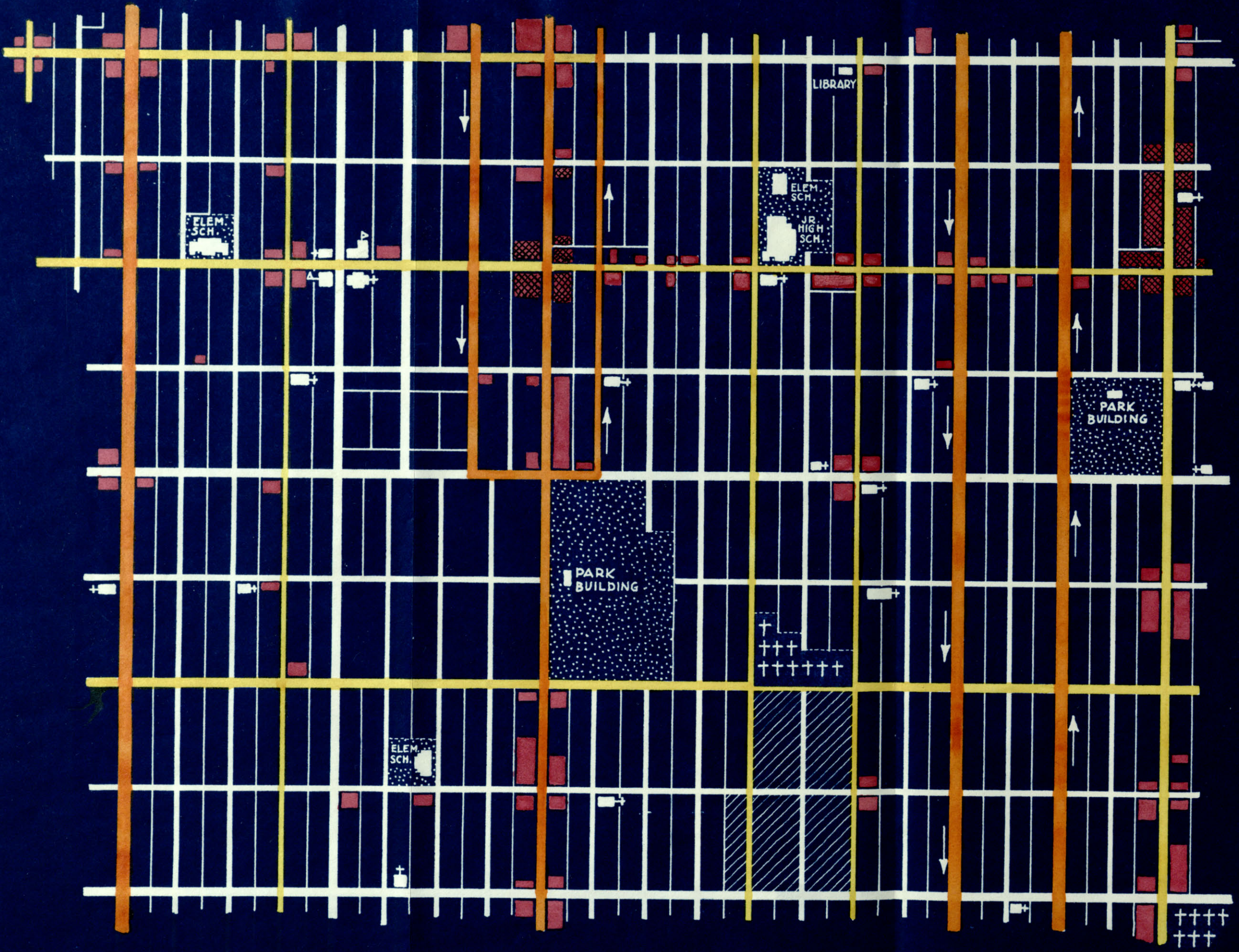
There are two major greenways for pedestrians that run east-west across the area and lead to a major park system and recreation area a few blocks to the west. They also cross the city to the east to join a river bank park strip.

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<sup>1</sup>Minneapolis City Planning Commission, Proposed Zoning Ordinance, (Minneapolis, 1948)



AREA 1  
BEFORE



LEGEND

- MAJOR SHOPPING CENTER
- NEIGHBORHOOD BUSINESS
- RESIDENCE
- PARK OR PLAYGROUND
- VACANT LAND

STREETS

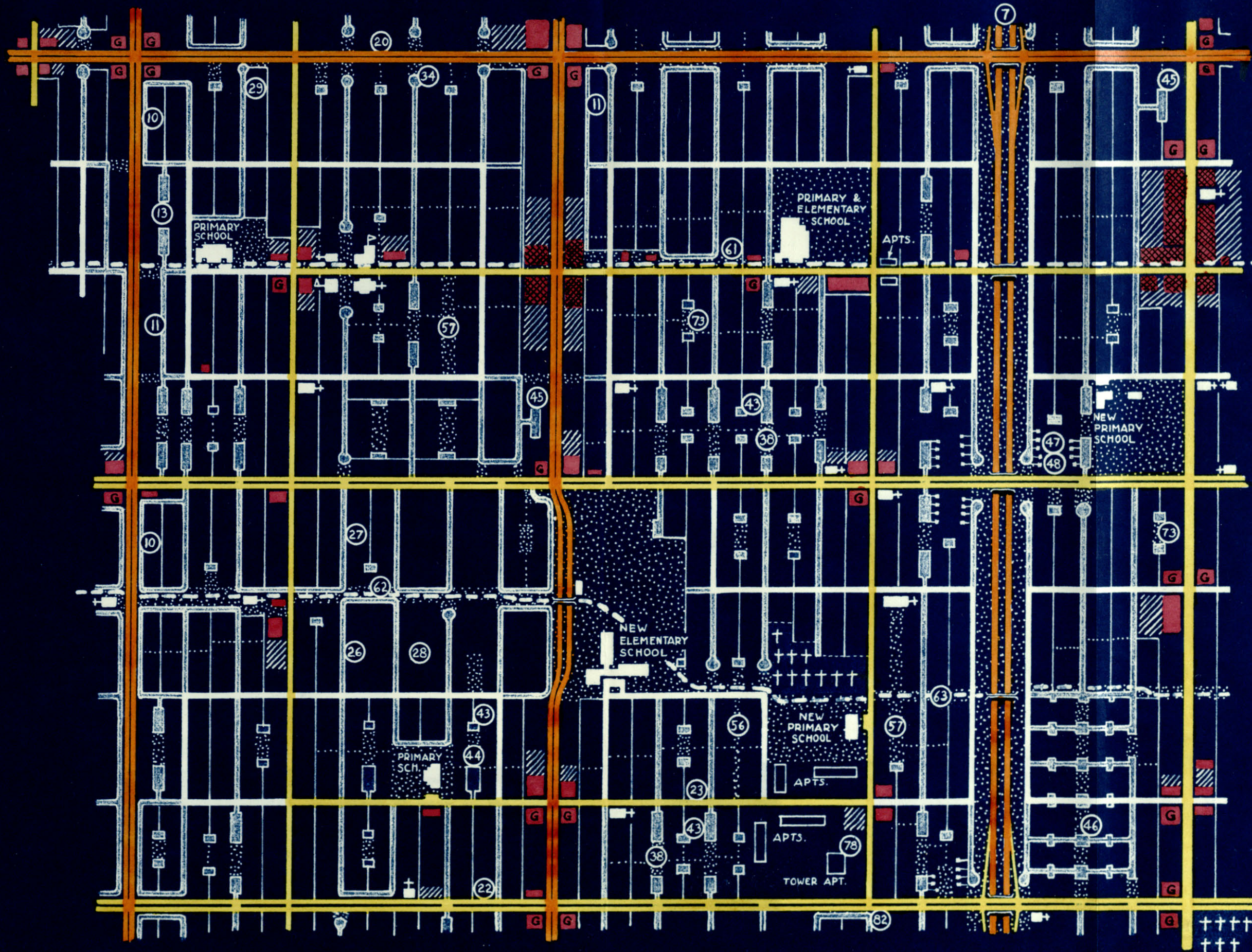
- 100' RIGHT-OF-WAY
- 80' "
- 60' & 66' "
- ALLEY
- MAJOR ARTERIAL
- THOROFARE
- LOCAL





# AREA 1 AFTER





155




## LEGEND

-  MAJOR SHOPPING CENTER
-  NEIGHBORHOOD BUSINESS
-  PARKING AREA
-  GAS STATION
-  RESIDENCE
-  PARK OR PLAYGROUND

## STREETS

-  MAJOR ARTERIAL
-  THOROFARE
-  FEEDER
-  CAPILLARY

-  MAJOR PEDESTRIAN WAY

-  FIGURE NUMBER —  
DESIGN IDEA REFERENCE



0 200 400 600 800 1000  
SCALE FEET



AREA 2A Post World War II Neighborhood

This is a one square mile area in the Village of Richfield, Minnesota, which is suburban to Minneapolis. It is bounded by Nicollet Avenue, Twelfth Avenue South, Sixty-sixth Street, and Seventy-fourth Street. The following population characteristics are an estimate based on 1950 Census Tract information:

Population of the total one square mile area	8,000
Number of dwelling units	2,200
Number of children from nursery through 6th grade age	1,500

Figure 87 - Before.

The street plan as shown here is, with one or two possible minor exceptions, the actual existing plan. The large shopping center, schools, town hall, and parks exist as shown. The sources of information are: USGS topographic map (1952), two city maps, and personal knowledge of the area. Most of the remaining features shown are assumptions, but probably do not differ greatly from what exists.

Figure 88 - After.

This plan shows the area divided into four sub-neighborhood units with small shopping center-foci on the corners. In this particular scheme the superhighway in the middle is the dividing line between two very generally conceived neighborhood units of one square mile each. The elementary school and shopping center on the right hand side are conceived as a neighborhood focus. No churches exist at present and some sites are provided in this scheme.






Since there are virtually no sidewalks or curbs, few trees, and all street pavements are of a quality of bituminous material that requires rather frequent maintenance, the costs of many of the changes suggested are canceled. Many new facilities such as sidewalks should be added anyway. Some houses are moved but none is removed from the area.



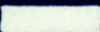

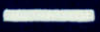




# AREA 2 BEFORE



## LEGEND

-  MAJOR SHOPPING CENTER
-  NEIGHBORHOOD BUSINESS
-  RESIDENCE
-  PARK OR PLAYGROUND
-  VACANT LAND

## STREETS

-  100' RIGHT-OF-WAY
-  80' "
-  60' & 66' "
-  ALLEY
-  MAJOR ARTERIAL
-  THOROFARE
-  LOCAL





# AREA 2 AFTER

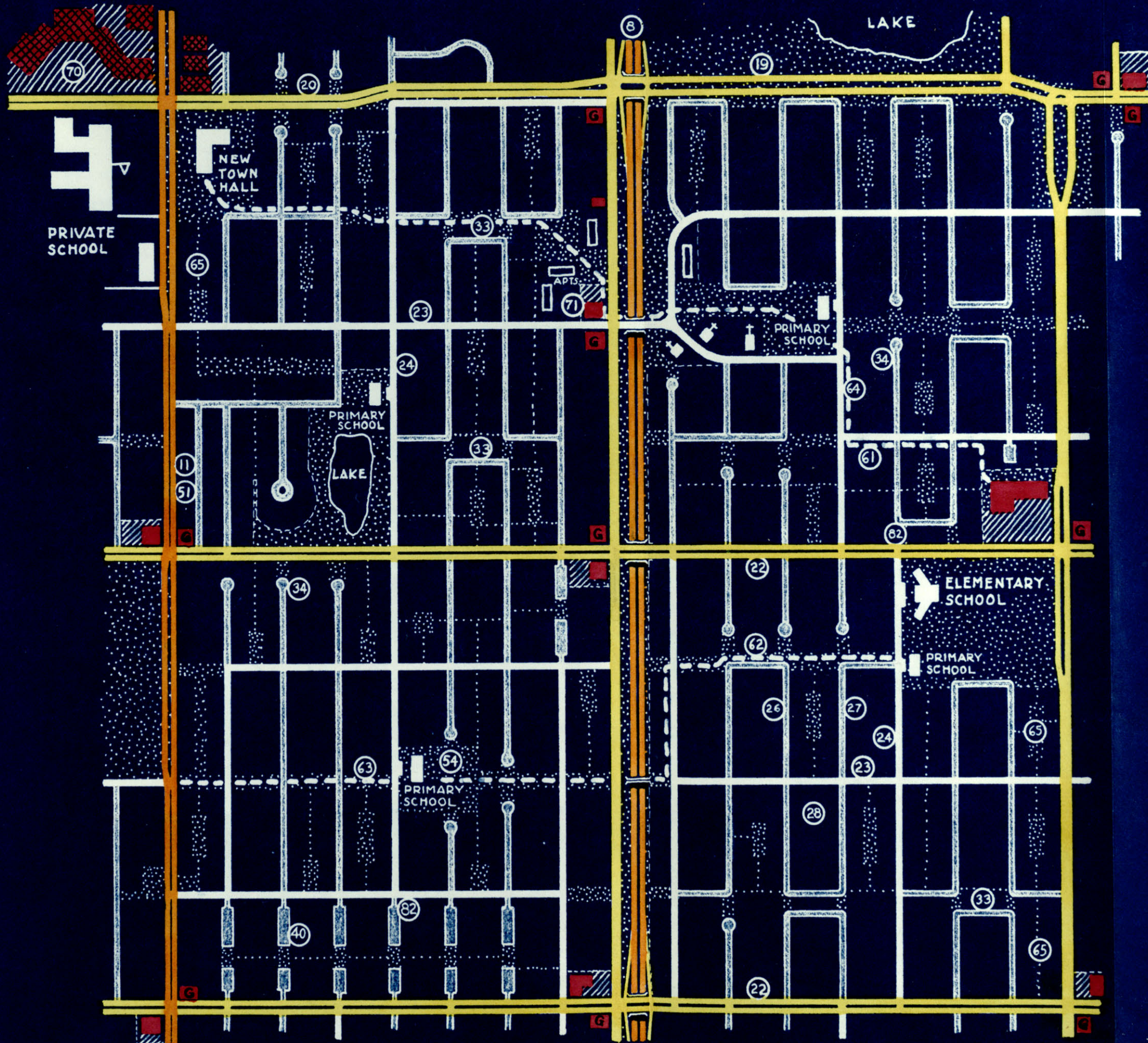
## LEGEND

- MAJOR SHOPPING CENTER
- NEIGHBORHOOD BUSINESS
- PARKING AREA
- GAS STATION
- RESIDENCE
- PARK OR PLAYGROUND

## STREETS

- MAJOR ARTERIAL
- THOROFARE
- FEEDER
- CAPILLARY

- MAJOR PEDESTRIAN WAY
- FIGURE NUMBER — DESIGN IDEA REFERENCE





## CHAPTER FIVE

### CONCLUSIONS

Following are several conclusions that relate to the design ideas and their sample applications.

A. Both of the "AFTER" sample neighborhoods in chapter four have many design ideas incorporated into them. However, an actual conservation project probably would have only a few types of such ideas applied over the entire neighborhood. The choice of which ideas to use would depend somewhat on the character of the area, but usually in any given spot any of several design ideas can be used almost equally well. In many cases the feelings of the residents would determine which designs are used.

B. The gridiron street plan has advantages which should not be overlooked and spoiled unnecessarily in an overzealous effort to remove the disadvantages. In the "AFTER" samples of Chapter four an effort has been made to preserve these existing advantages wherever feasible. Following is a list of advantages and some suggestions as to how they may be preserved while disadvantages are being eliminated:

1. A gridiron plan inherently has maximum flexibility. Any type of building or use can be placed anywhere on a grid with equal ease and the grid can be adjusted which is not so in a highly specialized street pattern where each part is designed for a specific function. This is an important point in the present era of rapid and unpredictable social and technological change.

2. A multiplicity of through streets provides for flexibility in traffic route arrangements. Detours are easy to provide when a main route is closed for repairs. In the event of disaster a maximum number

of through channels can be put into service for moving traffic. However, normal everyday traffic should be channeled into specialized routes while alternative routes which can be opened in an emergency are maintained. As an example, in the case of blocked streets fire lanes could carry through traffic under special circumstances.

3. At present each street goes through a full block with entrance and exit on both ends which provides greater assurance against the blocking of access to any house or building. The closing of one end for repair of underground utilities is simplified. Again, a fire lane can serve as temporary access to a blocked cul-de-sac when necessary.

4. The gridiron ordinarily provides equally easy and direct uncurtailed access to all houses and buildings. Most families want to bring cars close to the doors of their dwellings but some do not require it. At any rate there is only a small percentage of dwellings with access even slightly curtailed by the changes shown in the neighborhood examples.

5. Addresses in a typical rectangular grid pattern can be found with maximum ease. The grid forms an ideal framework for a co-ordinate numbering system for both streets and houses. The changes indicated in the design ideas make numbering more complicated. But a suggestion for a modified system still based on the grid form is shown in figure 83.

A rectangular grid can be extremely monotonous when all the land features placed in it are similar, as is frequently the case in existing residential areas. But it need not be monotonous as it is often is. Variety can be added within the essentially grid type framework as the design ideas are intended to show.



C. Motor vehicle traffic in the United States has become of such magnitude that when it is allowed to flow unrestrained over all parts of a gridiron street system it will negate any other neighborhood conservation measures that are designed to improve livability. For this reason much emphasis has been put on traffic arrangement devices in the ideas. However, this is not meant to diminish the importance of other conservation measures, and much additional thought is needed on them.

D. The problems that exist in middle aged residential areas are somewhat different from those in post-war areas:

1. The middle-aged areas tend to suffer more from traffic blight because of their higher density and their position nearer to the convergence of major traffic routes.

2. Middle-aged areas are more adequately supplied than post-war with certain types of neighborhood facilities such as churches and convenient stores. On the other hand the post-war areas tend to have schools with more adequate playgrounds.

3. Post-war areas generally have less complete physical improvements. For example curbs and sidewalks are often missing and even sewers frequently are not yet installed. Trees, if any, are usually saplings and easily moved. Houses are small and often without basements, which should make them easier to move.

4. There are some elements of variety, both esthetically and in dwelling types, which are more prevalent in middle-aged areas than in post-war ones where the problem of monotony is most severe.

E. Most houses built in the post-war areas are financed by money insured by the F.H.A. and thus have met its approval as good long-term investments. A large part of this housing is built in the monotonous

type of gridiron neighborhoods described earlier in this thesis. It is felt that many of these neighborhoods now need conservation measures to prevent early deterioration. The Housing Act of 1954 provides that the Federal Government will pay much of the cost of such conservation measures to change the pattern which was approved, in effect, by the F.H.A.

Neighborhoods of a physical pattern known to be likely to become blighted should not be built. Some form of indirect subdivision control by the Federal Government would be in its own interest. The F.H.A. and other financial agencies should require new subdivisions to meet minimum design standards of the sort listed in this thesis in order to reduce the likelihood of need a few years later for conservation measures at much expense to the Federal Government and all others concerned.

This thesis has been mainly an attempt to put in usable order, most of the scattered design ideas that have developed in recent years, for the rehabilitation and conservation of urban neighborhoods. The writer does not pretend to have gathered all the design ideas there are (the number is limitless), but the intention is to give some insight into what the most important and promising ideas are. These ideas have been springing up in answer to a growing demand and need to check the excessive rate of deterioration of our urban housing plant and its surroundings.

Most of our existing residential neighborhoods are badly planned to the extent that it is very difficult to bring them up to a standard that will maintain their value reasonably well. This is true in both the monetary and the human value sense. Only a very imperfect job of improvement can be done in comparison to what we would consider an ideal living area for human beings. But neighborhood conservation is an important challenge because it has such a large and intimate effect on so many people.

This is merely a catalogue of design ideas, some of which may



suggest ways to implement neighborhood conservation. It is not an easy short cut. It is a list of tools which a designer might use. One cannot hope to plan good neighborhoods by just putting together a list of design ideas like segments of a picture puzzle. One might apply all of these ideas to a neighborhood and come up with one that is worse than it was before. But if this listing is of some value in the designing processes of planners who are working on conservation of neighborhoods, it will have served one of its main purposes.

Another intention is that this thesis may be a beginning to much more research and to more orderly arrangement of neighborhood conservation design ideas. This subject of conservation of residential areas is sure to be of growing importance in the future. Much research is needed in the following subjects to put these conservation measures on a more scientific basis:

A. This thesis covers only part of the United States, and in a very general manner. A more comprehensive catalogue is needed that would cover regions and types of cases. Catalogues could be developed specifically for each individual metropolitan area or individual city and would be fitted to its much more specific problems and opportunities.

B. With more time for research a more thorough but general catalogue could be developed on the same line as this thesis.

C. Such a list of ideas requires frequent bringing up to date. This is made necessary by changing attitudes, desires, and needs on the part of the people. Also, changing technology and additional new design ideas make revisions necessary.

D. Perhaps most important is the need for research in related fields which can supply additional information and add validity to some of these design ideas and to disprove others. These areas of research include:

### 1. Sociology

- a. possibilities for education of people in acceptance of various ideas
- b. find what people want in a place to live. What choices should they have?

### 2. Law

Legal obstacles and possibilities in effecuation

### 3. Economics

More detailed analyses of the true comparative costs and benefits of various changes and no changes. Effect on self-renewing character.

The Demonstration Grant Program of the 1954 Federal Housing Act provides for grants aggregating up to \$5 million to public bodies for research in prevention or elimination of urban blight. The Federal Government will pay up to two-thirds of the cost to a community. A requirement is that the results of such research should be useful to communities other than the one or several doing the research. This provision of the Urban Renewal Program should provide a good opportunity for further work in the line of this thesis and could be carried out by a local planning agency.

This thesis deals only with physical design features. There are other factors that help determine neighborhood values and living conditions on which re-design has little or no effect.



## APPENDIX A

### Block Pattern Survey

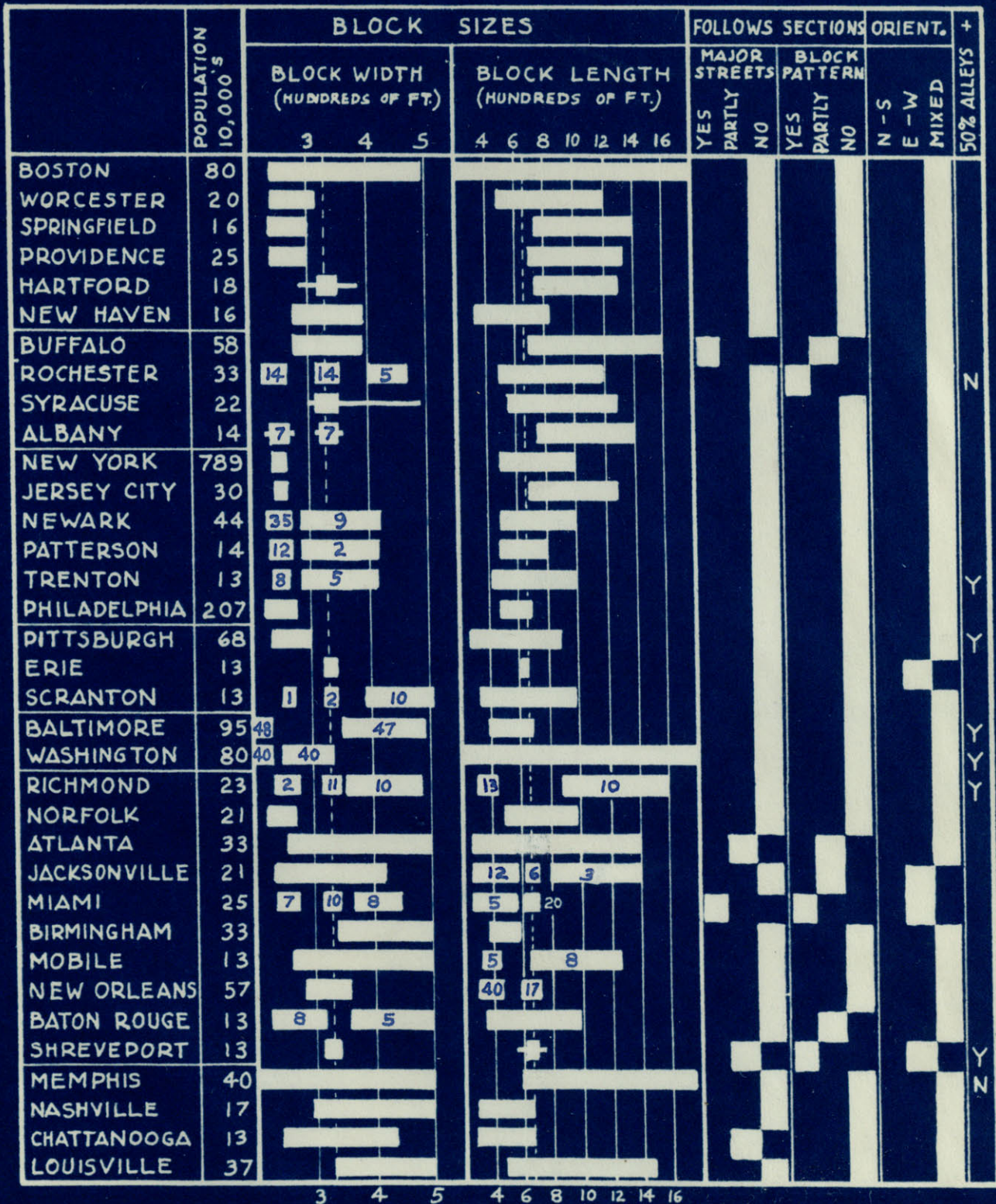
A survey was made to determine what the predominant physical block layout pattern is in U.S. cities. From a list of the 82 cities in the U.S. which had a population in the 1950 Census of 125,000 or more, I checked the street maps of 75. I noted the patterns and measured blocks of typical size and recorded an estimated percentage of the predominant block lengths and widths. I also recorded typical block orientations, the presence of alleys if indicated, the pattern of major streets, the degree to which the grid block pattern appears to be based on section lines (see appendix B), and other important features of the city.

The chart (figure 89) shows the generalized information that was gathered in this survey. The cities are arranged in geographical order to facilitate comparison of regional differences.

The seven cities that are over 125,000 population and are not included in this survey are:

	<u>Population 1950</u>
Bridgeport, Conn.	159,000
Yonkers, N.Y.	153,000
Charlotte, N.C.	134,000
Evansville, Ind.	129,000
Austin, Tex.	132,000
El Paso, Tex.	130,000
Long Beach, Calif.	251,000

## BLOCK PATTERN SURVEY



RANGE OF BLOCK SIZES

NUMBER OF PEOPLE LIVING IN BLOCKS OF THAT RANGE ( $\times 10,000$ )

A FEW BLOCKS ARE OUTSIDE THE PREDOMINANT RANGE

FIGURE 89 SHEET 1





**FIGURE 89 SHEET 2**

## APPENDIX B

### The United States Public Land Survey

When the vast public land areas to the west of the 13 original states were being opened up to settlers, the U.S. Federal government decided that an orderly land survey should be made of the entire area. In the older eastern states private property and town boundaries were located on the basis of wherever the original claim happened to be drawn. This resulted in the irregular and complicated quilt of boundaries which exists in the east. Many property line locations were uncertain because they were often described in very haphazard fashion.

The purpose of the great public land survey was to lay an accurate grid of firm official character on the land. It would be well-marked by stone "monuments" with bronze markers. Included in this survey were 29 states (the "public land states") and Alaska, as indicated on the map in figure 2. Texas made its own modified land survey which is basically similar in character to the U.S. survey.

The essentials of this survey are as follows: The land was divided into six mile squares which were designated as townships. These townships were subdivided into one mile squares which are known as sections. The sections were later subdivided into half mile squares (quarter sections) and quarter mile squares (sixteenth sections). These subdivisions were the basis for the boundaries of most farms in the area.

The public land states comprise 2,255,000 square miles (excluding Alaska) which amounts to three-fourths of the total land area of the United States.



APPENDIX CA Sample of 18 Zoning Ordinances

This sample was taken to determine approximately what the average setback requirements have been for houses in the more restricted residential districts of American cities.

Setback Regulations from 18 Zoning Ordinances  
For Single Fam. Det. Dists

City	Date	Front yard, ft.	Side yard, ft.	Rear yard, ft.	Lot area, sq. ft.
Auburn, Ala.	1945	25	6	30	7500
Charleston, W. Va.	1939	25	6	30	5000
Chicago	1955	20	3	30	
Chicopee	1940	25		30	
Denver	1955	20	5	30	
Des Moines	1926	30	7	30	6000
Detroit	1940	20	3	30	4000
Everett, Mass.	1924	20			
Hamilton Co., Ohio (urban)	1936	25	10	25	10000
Los Angeles	1946	25	3	25	5000
Madison, Wis.	1945	30	6	40	6000
Omaha	1945	35	7	25	7500
St. Louis	1949	25	4	25	4000
St. Paul	1922	25			7500
Schnectady		25	5	20	7500
Tacoma		15	7½	25	5000
Toledo	1944	25	5	25	2000
Topeka	1939	30	4	25	4500

(These are generally residence "A" districts which are the most restrictive. However, most setback regulations do not differ greatly in the moderately less restricted residence use zones. )



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